UNIVERSITY OF AGDER

Critical success factors and criteria in the purchasing process

A case study of a development project in Uganda

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This master's thesis is carried out as a part of the education at the University of Agder and is therefore approved as a part of this education. However, this does not imply that the University answers for the methods that are used or the conclusions that are drawn.

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I. PREFACE

The master's thesis is written as the final report of my M.Sc. degree in Industrial Exonomics and Technology Management at the University of Agder, the Faculty of Engineering and Science, the Department of Engineering Sciences. The thesis accounts for 30 credits, and was conducted during the period from November 2014 to May 2015. The case researched is Distance Education Leapfrogging Project at Makerere University, in Uganda. The project is in cooperation with The University of Agder and the Norwegian Agency for Development Cooperation (NORAD).

The procurement process was not considered comprehensively in the implementation of Distance Education Leapfrogging project, which made it interesting to research which factors that is critical in the procurement process to achieve project success. The research area has been very complex and challenging due to cultural circumstances, but also incredibly interesting.

I would like to thank my supervisor, Associate Professor Gøril Hannås (University of Agder) for valuable ideas and motivating and constructive feedback throughout my research. In addition, I would like to thank Joanna Kalagala and all the members of DELP at Makerere University and the University of Agder for giving me vital information and help through the research. I truly appreciate all the help and guidance provided by all of you.

Grimstad, 26.05.2015

Janne Nilsen

II. SUMMARY

The research concerns how critical factors influence the procurement process to assure available equipment in the project. The case studied, Distance Education Leapfrogging Project, is a development project at Makerere University in Uganda. The project's procurement process is critical to achieve project success, due to delays of equipment needed and equipment delivered with wrong specifications. Hence, to ensure adequate equipment according to schedule and more likely achieve success in DELP, the research concerns how critical factors influence the procurement process in the project to achieve success.

The research question illuminate the theoretical perspectives of critical factors in purchasing decision-making and project management literature. Thus, the factors identify critical areas of concern and provide information of what influence the criteria to measure success in the critical areas. Hence, the influencing factors that are critical to achieve success, which must be given special and continual attention to contribute to high results in the project.

To answer the research question, "How does critical factors influence the procurement process in Distance Education Leapfrogging Project to achieve project success?", qualitative method is used, collecting information from multiple sources of evidence to strengthen the validity. Furthermore, critical factors are found to influence the results of the procurement process. The research indicates that personal skills, social skills, regulations, market conditions and the bureaucratic organization structure is critical to achieve costs within budget, quality required and time scheduled in the decision making process. Furthermore, the communication and cooperation within the buying center, visibility and reputation of the project, training of users and stakeholders and commitment to the project is found to be critical to the overall procurement process to achieve project success in DELP. Taking into account the factors, it shows several areas in the procurement process that are critical. The risk of the poor outcome the factors can influence in the procurement process, is considered critical to project success in DELP. Thus, the research provides critical factors to help the members in DELP understand how the procurement process is critical, and how the factors influence the process to achieve a more effective process that can result in lower total costs in the future.

III. TABLE OF CONTENT

1 Introduction

Are development projects successful? The question is very complicated and will have varying perspectives, depending on context and purpose[1]. Success factors and criteria have made the object of several studies to indicate how projects achieve success (Pinto & Slevin, 1989; Baccarini, 1999; Atkinson, 1999; Lim & Mohamed, 1999; Dvir et al, 2001). However, there is a rising wave of criticism related to research on project success and the widespread assumption that a universal theory can be applied to all types of projects (Ika et al, 2009; Diallo & Thuillier, 2004; Khang & Moe, 2008). Development projects are often singular, influenced by a diversity of factors (e.g. environment, culture, work ethics) that will vary from one project to another. Hence, it makes it difficult to compare them with other projects and even more difficult to give an answer on how to achieve success. In addition, there is relatively scarce empirical research dedicated to factors and criteria in development projects, and little attention has been paid to development projects in the project management literature (Ika et al, 2009; Diallo & Thuillier, 2004; Khang & Moe, 2008).

To achieve success in development projects, flexible planning, project management structure, selection of team, implementation approach, compliance with rules and procedures, especially in the purchasing process, are considered critical factors in the implementation phase (Ika et al, 2009; Khan et al, 2000; Khang & Moe, 2008). Thus, the implementation of procurement in a project is critical, due to the process usually accounts for a high part of total expenditure (e.g. 40% in Malawi and 70% in Uganda, compared to global average of 12-20%), and sets in motion the entire acquisition process of local governments (Agaba & Shipman, 2006; Beshka, 2009). However, there is lack of procurement planning in development projects, which can be explained by the lack of understanding of the value of procurement and the regulations related to the planning (Basheka, 2009). It can also relate to the lack of capacity due to the limited number of competent people and lack of commitment and support from the management, as Youker (1989) highlighted as a problem in project management in general. Without a well implemented planning process, the subsequent process in procurement will not be optimized.

[1] http://www.norad.no/no/aktuelt/nyheter/l%C3%A6r-om-bistand-fra-norads-fagfolk

In a developing country like Uganda, it is particularly important to have an effective procurement system, due to complex geo-political environments and challenges regarding economic and ethical environment (Basheka, 2009). Hence, issues of accountability, transparency and corruption among others, makes it important to allow that public procurement is under scrutiny of different stakeholders to ensure that funds are managed right and wastage is kept to a minimum. In the case studied, Distance Education Leapfrogging Project, the complex procurement process was not considered comprehensively in the implementation of the project. Thus, the project needs available and adequate technical equipment to perform the transformation of distance learning. If not, the project will be delayed, and not obtain the planned goals within time. While this part is crucial to the project, there have been delays of products and products that arrive with the wrong specifications. Due to the consequences of the procurement process had not been adequately considered in the planning phase, the members have had concerns about finishing all the planned activities in the project within 2018.

To assure available equipment in the project, and more likely achieve project success in DELP there are many factors that will influence the process and the people working with it. Prior research provide factors that influence the decision-making process, but do not distinguish the factors that are depending on specific buying situations (Verville & Halingten, 2002). Hence, it is important to understand which factors influence the criteria that lead to success in the specific project, and be aware of which ones that are critical in the process. The major research question in the thesis pertains to the following:

> How does critical factors influence the procurement process in Distance Education Leapfrogging Project to achieve project success?

To answer the research question, I have highlighted factors that influence critical criteria in the procurement process, based on literature within purchasing decision making and project management. To narrow the thesis, the research mainly focus' on the activities performed by members of DELP (DELP is acronym for Distance Education Leapfrogging Project) and how they can better influence the procurement process to achieve adequate available equipment within schedule. In addition, the supplier's perspective is not included, and complex environmental factors (e.g. corruption) are not considered comprehensively, due to the extent of the research would go beyond what is required in the master thesis.

The content of the thesis is structured as described in figure 1.

Figure 1- Chapter description

2 Case Description

The case study concerns the procurement process in Distance Education Leapfrogging Project at Makerere University in Uganda. The project is a collaboration between the University of Makerere in Uganda, the University of Agder in Norway, and is financially funded by the Norwegian Agency for Development Cooperation (NORAD). Together they will provide resources to build Makerere University's human, infrastructural and technical capacity in the timeline of five years from the end of 2013 through 2018.

Distance Education Leapfrogging Project comprise leapfrogging 1th generation distance education into 4th and 5th generation distance education, whereas the strategy is to enhance ICT pedagogical integration and increase access to education in Africa. The project is in line with Makerere University's ten year strategic plan, which involve open, distance and e-learning as an action to increase access to flexible education at Makerere. In addition, it is in line with the Millennium Development goals of eradicating poverty and gender equality. Once 4th and 5th generation distance education is implemented at Makerere University, there should be a wider access to higher education to people in Uganda, and other countries like South Sudan.

The project activities involve education, research and institutional developments. Among the institutional development work, there is purchasing of equipment for computer laboratories, live recording of lectures and video conferencing facilities, which is budgeted for almost 3 million Norwegian Kr. Among the activities, training of teachers and the opportunity to conduct e-learning, needs available and adequate technical equipment at the right time. If not, the project will be delayed, and not obtain the planned goals. For instance, commissioning of computer labs and video conference studios, which is a major milestone in June, 2015. While this part is crucial to the project, there have been delays of equipment and equipment that arrive with the wrong specifications. Due to the extent of the procurement process had not been adequately considered in the planning phase of the project, the members have had concerns about finishing all the planned activities within 2018.

3 Theory

Success factors and criteria have made the object of several studies to indicate how projects achieve success (Pinto & Slevin, 1989; Baccarini, 1999; Atkinson, 1999; Lim & Mohamed, 1999; Dvir et al, 2001). However, there is a rising wave of criticism related to research on project success and the widespread assumption that a universal theory can be applied to all types of projects (Ika et al, 2009; Diallo & Thuillier, 2004; Khang & Moe, 2008). Development projects are often singular, influenced by a diversity of factors (e.g. environment, culture, work ethics) that will vary from one project to another. Hence, it makes it difficult to compare them with other projects and even more difficult to give an answer on how to achieve success. In addition, there is relatively scarce empirical research dedicated to factors and criteria in development projects, and little attention has been paid to development projects in the project management literature (Ika et al, 2009; Diallo & Thuillier, 2004; Khang & Moe, 2008).

To achieve success in development projects, flexible planning, project management structure, selection of team, implementation approach, compliance with rules and procedures, especially in the purchasing process, are considered critical factors in the implementation phase (Ika et al, 2009; Khan et al, 2000; Khang & Moe, 2008). The procurement process is critical to project success, as the project's implementation and completion depend on the products procured and due to the process accounts for a high part of total expenditure (e.g. 40% in Malawi and 70% in Uganda, compared to global average of 12-20%) (Agaba & Shipman, 2006; Beshka, 2009). Thus, there are many varying factors to consider in the decision-making process. For instance, the behavior of members involved in the decision-making process affect the tasks to perform the objectives, structure of communication, status and work flow, and skills of the personnel (Webster & Wind, 1972).

To ensure available equipment within schedule is critical to achieve project success in the case studied. Hence, success factors and criteria in the project management literature are presented, emphasizing development projects. Furthermore, the buying behavior theory is presented, emphasizing variables and influencers in the decision making process. Due to the procurement process is critical to project success and several influencers in the procurement process take part of the management of the project studied, it is important to consider the factors that influence projects in general. Thus, in international development projects, it is important to understand the project's

singularity and unique environment, which makes the consideration of the factors more comprehensive (Ika et al, 2009).

3.1 Project success

Project success is considered a difficult term, because there are no standardized definition nor an accepted methodology of measuring it (Baccarini, 1999; Liu and walker, 1998). Ika (2009, p. 71) states, *"Project success remains an ambiguous, inclusive, and multidimensional concept and its definition and measurement are bound to a specific context".* To measure project success, different factors and criteria are discussed to consider what makes the project effective, efficient and competitive in a shifting, complex and unpredictable environment. The factors and criteria are developed to identify critical areas of concern and measures that reflect the critical areas. Since the distinction between the two concepts are often mistaken or considered synonymous, it is important to clarify the difference. Figure 2 depicts that factors are any circumstance, fact or influence that must be given special and continual attention to bring out a result (Ika, 2009; Lim & Mohamed, 1999). A criterion is considered a principle or standard by which anything is or can be judged. Müller and Jugdev (2012, p. 758) describes project success criteria and factor more comprehensively.

"Project success factors, which are the elements of a project which, when influenced, increase the likelihood of success; these are the independent variables that make success more likely.

Project success criteria, which are the measures used to judge on the success or failure of a project; these are the dependent variables that measure success. "

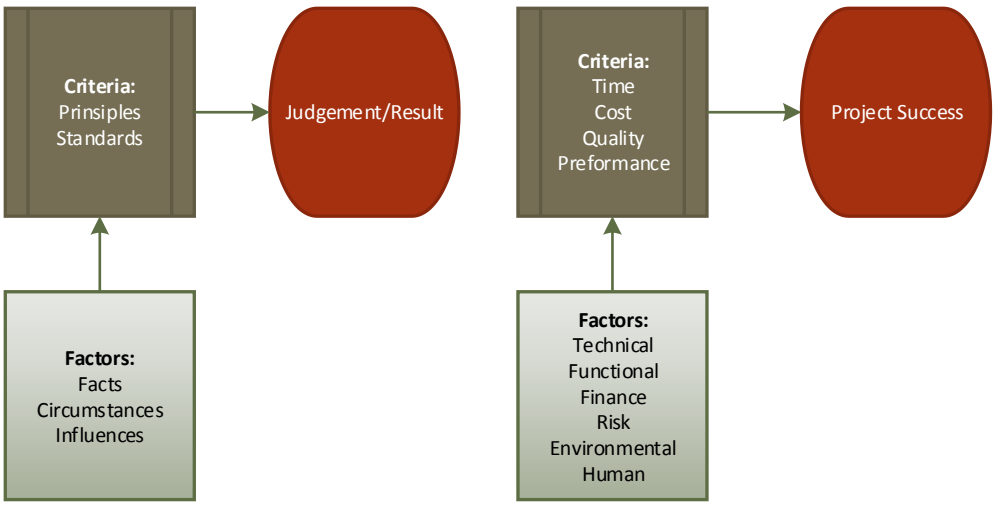

Figure 2- Project success and criteria (Lim & Mohamed, 1999)

Understanding how the critical factors influence the different phases of the project, enhances the ability of stakeholders to ensure the desired objectives and achieve project success. In addition, it contribute to forecast the future status of the project, diagnose problems that occur and prioritize their attention on the factors contributing to achieve the project objectives (Khang & Moe, 2008).

3.1.1 Success factors and criteria

Success factors and criteria have made the object of several studies to indicate how projects achieve success (Pinto & Slevin, 1989; Baccarini, 1999; Atkinson, 1999; Lim & Mohamed, 1999; Dvir et al, 2001). Most of their approaches consider time, cost and quality, which is unequivocal and easy to apply (Baccarini, 1999) (Dvir, Raz, & Shenhar, 2001) (Atkinson, 1999) (Lim & Mohamed, 1999) (Baccarini, 1999). The measurement for obtaining success is typically related to meeting the project's budget, schedule and achieving an acceptable level of performance (Dvir, Raz, & Shenhar, 2001). However, even though the project meets the planning objectives, it does not necessary satisfy the end-users needs or requirements. Projects have often been delivered within time, cost and quality, and then been considered failures. At the same time, other projects have exceeded time and cost constraints and been considered successful (Ika L. A., 2009). There have been many variations of the triangle over the years. For instance, Baker (1974) added the issue of client satisfaction to the triangle (Ika L. A., 2009). Project success consists of the achievement of the strategic objectives of the client organization that initiated the project, as well as the satisfaction of the users and key stakeholders' need (Ika, 2009; Khang & Moe, 2008).

The logical framework method is a well-known approach which expand the "time, cost, quality" approach. Baccarini (1999) propose that project success consists of the two components, product success and project management success (Baccarini, 1999). He claims that the criteria for measuring project success must be decided in the beginning of the project, to influence the team members to aim for the same objectives. The project management success should focus upon the project process, and the accomplishment of cost, time and quality. It deals with the outputs and inputs of the project, and considers how the process was conducted. The product success considers the project goal, purpose and which criteria effects the project's final product (Baccarini, 1999). Among the criteria, Baccarini (1999, p.26) considered stakeholders satisfaction as crucial, and states that *"Project stakeholders are individuals and organizations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion"*. Key stakeholders during the project management process are the client and the project team, while referring to the product they are the costumer/users. Research indicates that project managers focus more on the short-term criteria, related to the project process (meeting time and budget) then the long-term criteria related to the product and users satisfaction upon delivery (Baccarini, 1999). Hence, product success and project management success must identify the stakeholders' needs, and then influence the expectations to ensure a successful project (Baccarini, 1999).

However, there is a rising wave of criticism related to research on project success and the widespread assumption that a universal theory can be applied to all types of projects (Ika et al, 2009; Diallo & Thuillier, 2004; Khang & Moe, 2008). Previous studies of the literature shows that several authors have developed sets of critical success factors, but not considered the context of development projects (Khang & Moe, 2008). Thus, as development projects are singular, influenced by a diversity of factors (e.g. environment, culture, work ethics) that will vary from one project to another, it makes it difficult to compare them with other projects and even more difficult to give an answer on how to achieve success.

Success factors and criteria in development projects

The first ones doing empirical research of success criteria and factors in international development projects was Diallo and Thuillier (2004). Due to relatively scarce empirical research dedicated to factors and criteria in development projects, and little attention paid to development projects in the

project management literature they assessed how project success is linked to communication and cooperation between stakeholders (Ika et al, 2009; Diallo & Thuillier, 2004; Khang & Moe, 2008). Because the stakeholders often belongs to different cultures, the communication between the parties involved is more challenging, as it also takes place across large distances. In their research, they found that coordinators in development projects considered two criteria as most important to project success. First, they consider management performance like time, cost and quality as important. Second, the project's profile, described as the visibility and reputation earned by their project (Diallo & Thuillier, 2004).

By adopting the Logical Framework approach, Khang and Moe (2008) did a research of objective success critera and factors in international development projects. They presents a conceptual model that identifies which success criteria and factors to consider in the different phases of the project life cycle. In the implementation phase, flexible planning, project management structure, selection of team, implementation approach, compliance with rules and procedures, especially in the purchasing process, are considered critical factors (Ika et al, 2009; Khan et al, 2000; Khang & Moe, 2008). The purpose is to help the project management team and key stakeholders to prioritize their attention and scarce resources to ensure project success (Khang & Moe, 2008).

In the life-cycle-based framework, project management success is progressively evaluated in the different stages of the project (Khang & Moe, 2008). For each phase, it can be measured by evaluating the quality of the end products generated and the achievement of the results intended. The success of the last phase is the result of the success of all the previous phases. Due to the end product of each phase serve as input for the subsequent one, whereas the success criteria for one phase takes part in the success factors for the next phase. For instance, "output produced meet the planned specifications and quality" is a criteria in the implementation phase, and will serve as the factor "adequate provisions for project closing" in the completing phase. Each phase involves competencies and commitment to carry out the scope of the project, and are influenced by enabling environmental conditions. The project success reflects the effective use of the final products and the achievement of the projects purpose and long-term goals. It is evaluated by the end of the project, by a different set of criteria, which should be based on the development impacts, the sustainability and the acceptance of the project achievements (Khang & Moe, 2008).

To make it less extensive, Khang and Moe (2008) focus on the most common factors based on their own experience with the project stakeholders. The most relevant perspectives to manage international development projects contain success factors that are closely interrelated, at times overlapping. Among the factors, individual skills like technical, interpersonal and administrative are considered critical. Hence, it is important with effective training and relevant project experience. In addition, the need for carefully recruiting the right manager and personnel to ensure project success are identified by other authors like Pinto and Slevin (Pinto & Slevin, 1989; Khang & Moe, 2008). Like Diallo and Thuillier (2004), they consider communication and trust between team and stakeholders as critical to perform the project, as well as project visibility and reputation. Hence, the project must affect the different stakeholders and members must be dedicated and willing to perform the scope of the project and collaborate with all members involved. The compatibility of the interests of the individuals are important in international development projects, where relationship between the team and stakeholders are more complex (Khang & Moe, 2008; Youker, 1989). The environment often refers to the relationship to external conditions and stakeholders (Diallo & Thuillier, 2004; Khang & Moe, 2008). Khang and Moe (2008) identify key environmental factors as support from management and key stakeholders, compatible rules and regulations and adequate resources. Researchers like Pinto and Slevin(1987) identified top management support and adequate allocation of resources as key factors. To achieve a holistic understanding of the factors and criteria, a comprehensive overview of the most relevant ones are presented in table 1.

Success factor	Success criteria	Researcher	Year	Research Method
	Time Cost Quality User satisfaction Stakeholders satisfaction	Baccarini	1999	Conceptual model
Technical Commercial Risk Finance Environmental Human	Time Cost Quality Performance Safety	Lim and Mohamed	1999	Empirical experience survey (Unstructured interviews)
Communication between stakeholders Thrust between stakeholder Cooperation between stakeholders Visibility and reputation earned by project	Time Cost Quality	Diallo and Thuillier	2004	Empirical stastistical questionnaire
Visible impact on the beneficiaries Good reputation Ownership of the project Individual skills Training Communication between stakeholders Commitment to project goal Thrust Support from management Support from stakeholders Compatible rules Adequate resources	Time Cost Quality Satisfaction of stakeholders Satisfaction of users	Khang & Moe	2008	Empirical stastistical questionnaire

Table 1- Overview of success factors and criteria from Project Management literature

3.2 Buying behavior in the decision-making process

The procurement process is critical to project success, as the project's implementation and completion depend on the products procured and due to the process accounts for a high part of total expenditure (e.g. 40% in Malawi and 70% in Uganda, compared to global average of 12-20%) (Agaba & Shipman, 2006; Beshka, 2009). Thus, there are many varying factors to consider in the decision-making process. Research within organizational buying behavior has been concerned with development of integrated conceptual models that represent the different activities performed in the procurement process, the people influencing the decision-making and variables that affect the buying situation. Among the various conceptualizations of buying behavior, Robinson et al. (1967) developed a buygrid framework, representing the activities usually performed in an organizational buying situation. Furthermore, Webster and Wind (1972) described the significance of physiological, social, organizational and environmental factors in the buying process. They considered organizational buying behavior as influenced by the individual members' goals, personal characteristics, leadership within the group, structure of the group, tasks performed and environmental factors (Webster & Wind, 1972). The models provide variables that might affect the organizational buying situation. However, they do not distinguish the variables that are depending on the specific buying situations (Verville & Halingten, 2002). Even though the variables will have an influence, the extent of how they will influence the situation will vary depending on the context and purpose of the specific procurement and the people working with it. In a developing country, it is particularly important consider the variables, due to complex geo-political environments and challenges regarding economic and ethical environment (Basheka, 2009). Hence, issues of accountability, transparency and corruption among others, makes it important to allow that public procurement is under scrutiny of different stakeholders to ensure that funds are managed right and wastage is kept to a minimum.

To achieve an organized process, the people involved have an essential role, which often vary. The factors related to the interpersonal interaction between the members in the buying center, and their interactions with the suppliers must be considered. First, the role expectations, which is influenced by the tasks connected to form the flow of work throughout the organization (Webster & Wind, 1972; Bonoma & Zaltman, 2011). Second, the role behavior, which is influenced by personal factors (Webster & Wind, 1972; Wynstra et al, 2011). Third, role relationships, where a set of people are connected by informal and personal relationships. Thus, it will have an impact on the

interactions between the members in the organization (Webster & Wind, 1972; Bonoma & Zaltman, 2011). The awareness of the factors will give an understanding of the relationships among the roles in the buying center.

3.2.1 Influencers in the decision-making process

The individuals and groups who participate in the procurement decision-making process are known in the literature as the buying center or the decision-making unit (Webster & Wind, 1972; Weele, 2014). Since they operate as part of a total organization with shared goals, their behavior will influence other members, communication within the organization, technology used and the buying tasks performed in the process (Webster & Wind, 1972). To influence the organizational buying process, it is important to understand and define the buying responsibility, composition of the buying center and structure of roles and authority within the buying center. The following roles are described based by Webster and Wind's (1972) in their General Model:

Users, which are members who work with the product or service purchased. They have an important impact when identifying the needs and what specifications of the product to consider.

Influencers, which will affect the outcome of the decision process directly or indirectly by providing information and advice to evaluate the buying actions. This is often a member with expertise on the product, or part of the product procured. For instance, complex technological equipment should be advised by an ICT technician, which can provide specifications and requirements on the product needed.

Buyers are those with formal authority to negotiate the terms and conditions of the contract. They evaluate the suppliers' offers, select the supplier(s) and are responsible for the contracting with supplier.

Deciders have authority to choose among alternative actions, like which specifications and requirements to demand. In some cases, they determine the selection of the supplier. In other cases, they are the person who control the budget (Weele, 2014).

Gatekeepers control the flow of information from the supplier into the buying center. In some cases, the buyer is the gatekeeper, with the power to decide how the supplier documentation should circulate within the organization.

The different tasks in the procurement life cycle has appeared in the literature including a variety of phases. Figure 3 describes a general overview of the phases and who is responsible for the different activities required in the process (Webster & Wind, 1972; Archer & Yuan, 2000; Weele, 2014).

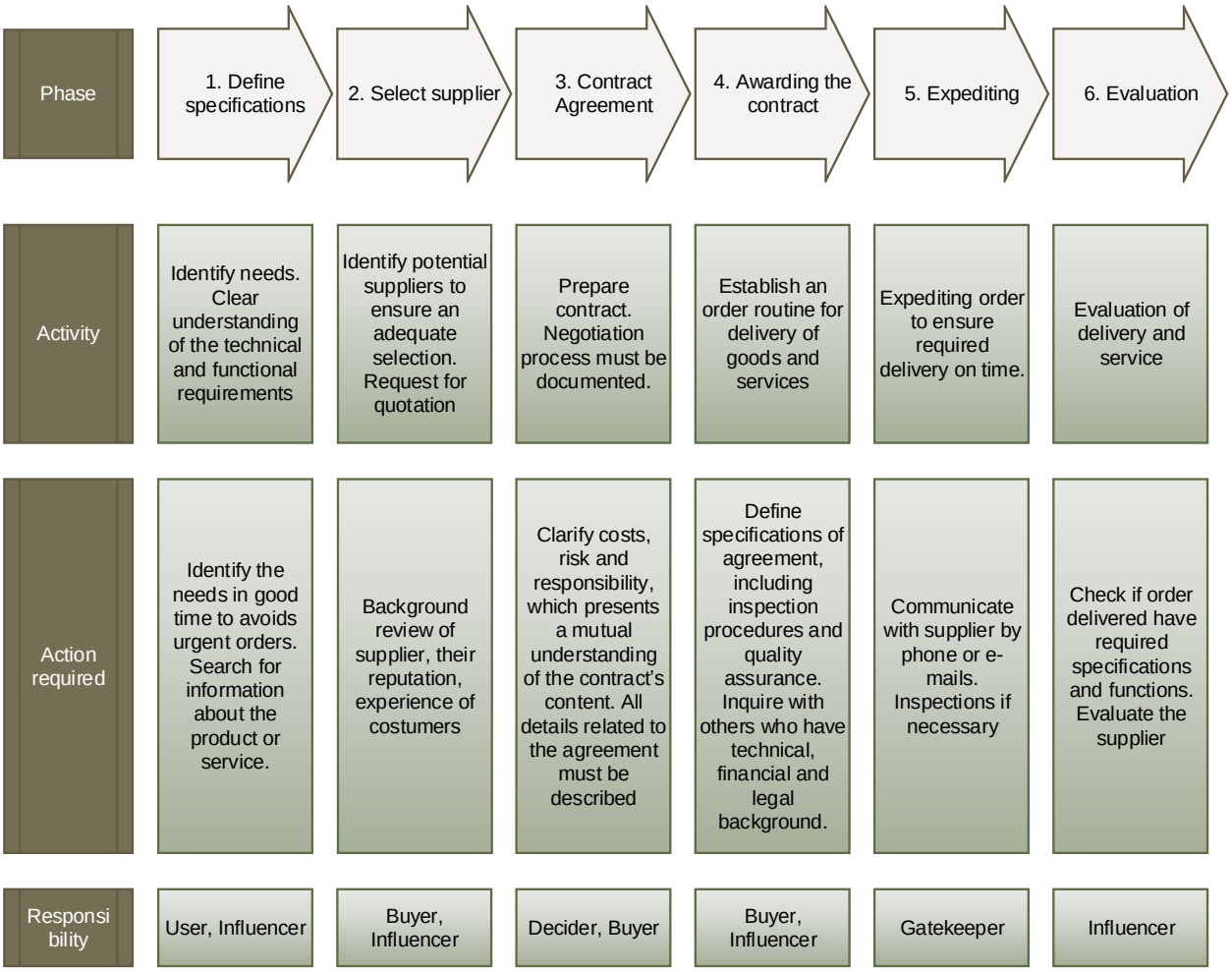

Figure 3- The procurement process

3.2.2 Variables in the decision-making process

The presented decision-making process is important to structure, which can pay off in lower organizational costs and higher productivity (Weele, 2014). Regularly, few situations include all the steps in the process. If there is a straight rebuy situation, the product and supplier are known. In the situation, the contract is often re-established in negotiations and the uncertainty regarding the outcome is low (Weele, 2014; Robinson et al, 1967). In modified rebuy, a new product is

purchased from a known supplier, or an existing product from a new supplier. This makes the situation more certain, due to specifications of product or the selected supplier are known (Robinson et al, 1967). However, first time purchase of a product with an unknown supplier include all the steps. The situation has a high degree of uncertainty due to specifications and supplier must be assessed, which is considered some of the most important steps in the process (Weele, 2014; Robinson et al, 1967). When defining the specifications of needs, the technical and functional requirements will have an impact on the suppliers selected and the further decision making. Thus, they take part in the contract specifications and purchase order specifications, which will have an impact on the overall process. For instance, maintenance specifications like after service and spare parts available in the future, and delivery specifications, like place and time of delivery must be specified in the contract. To secure on time delivery, the expediting routine is important to specify, regarding the range of communication with the supplier. Problems regarding delivery, e.g. products are delivered too late, not complete according to specifications or damaged, can usually be tracked back to careless supplier selection or unclear specifications (Weele, 2014). However, it may also be due to lack of follow up of suppliers and tracking of supplier quality. Hence, the selection of supplier and cooperation with the supplier is important to ensure adequate delivery of products. To ensure a qualified supplier, there are several important activities to consider in the decision. E.g. pre-qualification requirements, evaluation of vendor rating score and references of prior experience, among others (Weele, 2014).

However, the characteristic of the product and the purchasing market will mainly decide how to handle the situation of the product. For instance, if the product is complex with high total costs and not easily available in the market, the risk of the product is high (Fisher, 1970). Hence, the purchase need special attention from top management and cross-functional communication within the buying center and with supplier. On the other hand, if the product is standard and have low impact on the financial results, it can be considered a low risk product, which do not demand cross-functional decision-making (Fisher, 1970). However, low-cost products that are not easily available is considered as bottleneck-products and can turn out to be a significant risk, which also need special attention from the top management (Weele, 2014). Hence, it is important to consider the products complexity and commercial uncertainty. As the risk related to the purchase decision is higher, more disciplines will be involved in the process, and the lead-time will diminish as the organization has more expertize with the purchase of the product and the supplier (Weele, 2014).

Personal factors

Although, the buying center have a clear view of the process and activities to be managed, the people and their performance determine to a great extent how the activities are carried out and the quality of the process performed (Wynstra et al, 2001). Prior research consider several personal factors that influence the purchasers' abilities in the buying process. Among the personal factors, personal skills are considered as a major influence. E.g. previous experience, level of training and education, degree of technical expertise (Wynstra et al, 2001; Atuahene-Gima, 1995). It is essential to possess the right capabilities to perform an effective role and understand the technical aspects of the process (Wynstra et al, 2001). This is particularly true when defining specifications and selecting supplier in purchasing of technical, complex products with high uncertainty (Weele, 2014; Fisher, 1970).

Commitment is another personal factor, which refer to the willingness and aggressiveness of purchasers to be involved in the activities. E.g. pro-activeness and professional affiliation (Wynstra et al, 2001; Atuahene-Gima, 1995). A purchaser, who are content to focus on routine tasks, will be less involved in the activities not related to the normal procedures (Wynstra et al, 2001). However, skilled purchasers and their commitment will not add value to the process if personnel in other department do not perceive them as capable to perform the tasks. Hence, credibility is important to make organizational buyers perceive confidence from counterparts (Wynstra et al, 2001; Atuahene-Gima, 1995).

In addition, Atuahene-Gima (1995) considers factors that refers to how the organizational buyers interact with people inside and outside the organization. Cross-functional interaction, interaction with supplier and use of updated information in the supply market is important to the information sharing and gathering of the product. According to Fisher (1970), cross-functional decision-making is particularly necessary when purchasing products with high complexity and commercial uncertainty. E.g. new products, which require organizational adaption and after sale service. Thus, social skills, like communication skills and the ability to collaborate in team settings are considered equally important as the personal skills (Wynstra et al, 2001).

Environmental factors

The buying center, especially within public procurement, have always faced challenges of a variety of environmental factors(Thai, 2004). Each country has its own environment, including factors as physical, technological, political, economic, legal and cultural (Webster & Wind, 1972; Thai, 2004). Hence, each country will face different challenging factors at different levels. According to Webster and wind (1972), the environmental factors have an influence in four ways.

First, physical, technological and economic factors will influence the availability of goods and service. For instance, physical factors as geographic will define the availability of products (Webster & Wind, 1972). In developing countries, this is particularly true for new technology products. Although development countries have gained more access to technologies, it is important to increase aid to propel progress on access to reach the Millenium Development Goals (UN Department of Public Information, 2015). As technology rapidly change, the buying center face a greater access to products all over the world, and must embrace the new information available(Thai, 2004). Verville and Halingten (2002) discuss the issue of remote support as a physical factor, regarding the quality of support provided locally. If the supplier itself would be able to provide technical support or if the provider is a third-party organization, should be considered concerning the reliability of the service provider, timeliness, availability of expertise and overall cost, among others (Verville & Halingten, 2002).

Second, economic and political factors define the general business conditions (Webster & Wind, 1972). Market conditions will have a great influence on whether or not the socio-economic objectives of procurement are satisfied. E.g. if the governmental entity can fulfill the needs of timeliness of fulfillment, quality and costs of procured products or service. Thai (2004, p. 7) states, *"as there are different levels of economic growth among the countries in the world, market conditions are very favorable in industrialized countries, while they may be unfavorable in developing countries"*. Since the markets become more and more globalized, the buying center face challenges including communication, lead-time, transportation and trade agreements among others. Thus, the buying center must carefully consider the total cost of foreign purchasing and compare them to domestic costs (Thai, 2004; Weele, 2014). In addition, political environment can refer to business competition, which reflect the amount of suppliers available in the market. For instance, when selecting suppliers, the buying center should be concerned with maintaining the

competition, either by keeping relatively weak companies in business or let them go out of business (Thai, 2004). Last option will leave a few defense-specialized firms to compete for the contracts, which is a common issue in developing countries (Thai, 2004). Due to the large firms are willing to make a small profit margin, or even take losses by offering best bids, the small firms go out of business. Hence, it can result in an imperfect competitive market, and reduced selection of supplier.

Third, political, cultural and legal factors determine the values and norms in relationships between buyers and suppliers, as well within the buying center and between the competitors (Webster & Wind, 1972). Legal factors can refer to regulations with deceptive advertising, disclosure of product specifications and contract requirements and laws (Thai, 2004). In developing countries, government contracts need detailed provision where legal systems are not comprehensive. Culture factors can refer to implicit norms and rules. For instance, where giving gifts is a common practice, it could be difficult to distinguish between gifts and bribes.

Finally, the physical, technological, economic and cultural factors influence the information flow, as well as social skills. Most important is the flow of communication with potential suppliers. Hui et al (2011) highlights non-existent or ineffective supplier development programs as an issue in the Malaysian procurement process (Hui et al, 2011). Thai (2004) discuss the rapid development in technology as an essential challenge to development countries. The constantly changing environment force organizations to rethink how to perform an effective procurement process (Basheka, 2009). For instance, it lead to new procurement methods, which demand training to achieve an efficient and effective process (Thai, 2004). Hence, new ways of defining the needs, creation of bidding documents, announcements, evaluation and contract supervision to mention some (Basheka, 2009). To achieve effective and efficient purchasing, the buying center must carefully appraise the personal factors and environmental factors influencing the process. They are all important determinants to organizational buying behavior. However, they can be considered implicit and basic, which makes it easy and dangerous to overlook them (Webster & Wind, 1972).

To achieve an overview of the connection between success factors and criteria from project management literature and the buying behavior theory, figure 4 is presented. The figure is based on the factors that influence the criteria in the decision-making processes that appear most critical from prior research. Thus, to show the resemblance, the success factors from project management literature are presented where they are considered similar to the decision-making factors.

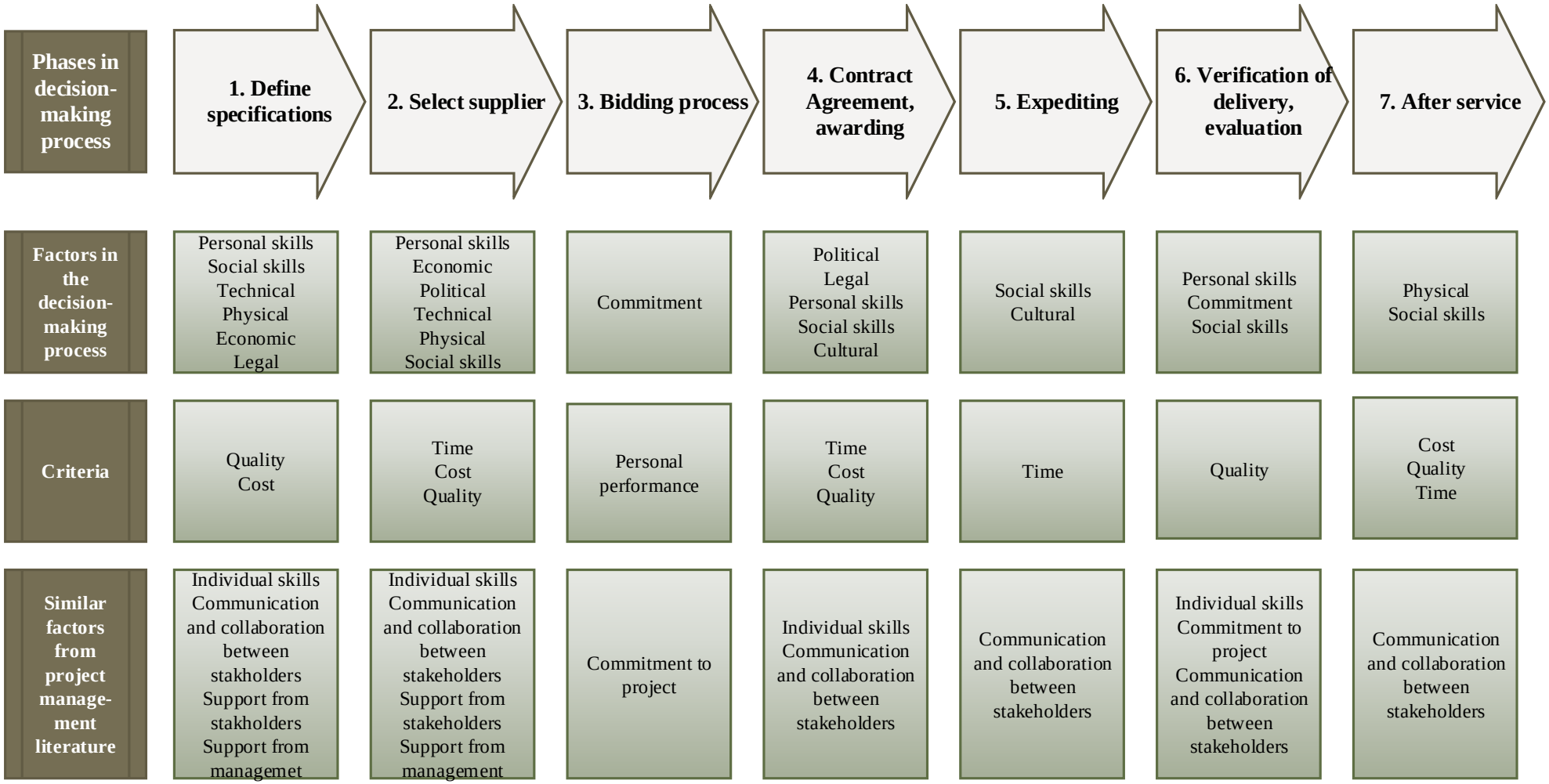

Figure 4- Critical factors and criteria in the decision making process

4 Methodology

The purpose of this chapter is to describe and explain the methodological approaches used in the thesis. In this chapter, I present the research design and the quality of the research design.

4.1 The Research Design

The master's thesis is a case study of a developing project at Makerere University, named Distance Education Leapfrogging Project. It is a single case study and considers how critical factors influence the procurement process to achieve project success.

Case studies are preferred when dealing with questions of "how" and "why", because it allows the researcher to investigate a contemporary phenomenon within its real-life context (Yin, 20014). Although Yin (2014) is used as a guide to collect case study evidence, this case study is also based on Maxwell's Interactive Model of Research Design. There is not a straightforward strategy to use for designing a qualitative study. The research design will to a substantial extent be constructed and reconstructed, in terms of going back and forth between the different components and assessing their implications for one another (Maxwell, 2013). During the research, there will be a continuous assessment of how the design is working, and how it influences and is influenced by the study's context (Maxwell, 2013). For this case, it was essential to have an exploratory research in Kampala, to gain hands on knowledge of the project and the different culture and environment in Uganda. In addition, the information provided is derived from multiple sources, such as semi-standardized interviews, archival records, observations and informal meetings. The data collected include the most important aspects of the procurement process, as well as factors and criteria found critical in the buying process and the project overall.

4.1.1 Data collection

The study has relied on data triangulation, collecting information from multiple sources of evidence illustrated in figure 5 to maintain the validity and reliability of the thesis (Yin, 2014). In this research, there has been used archival records, open-ended interviews, observation and informal meetings and discussions, which is described in this section. Unlike quantitative methods, which rely on statistical relationship between different variables, qualitative methods tends to see how people, situations, events and processes influence one another (Maxwell, 2013). Qualitative methods are especially suited in case studies where the goal is to understand the participant's perspectives, in terms of their cognition, affect and intention of the situation they are involved

(Maxwell, 2013). Qualitative research are typically suited for studies with a relatively small number of individuals or situations, whereas they are able to see how events, actions and meanings are shaped in the unique circumstances they occur (Maxwell, 2013). Hence, the approach is preferred in this case.

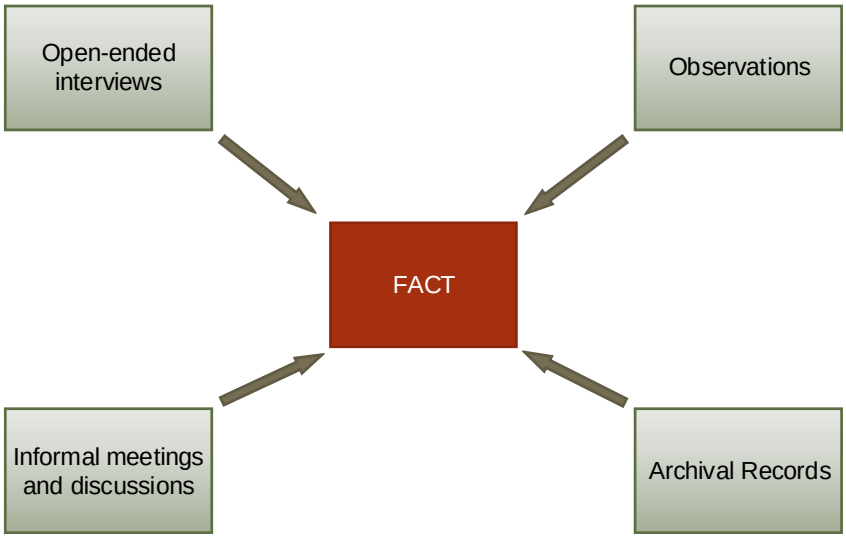

Figure 5- Multiple sources of evidence

The analysis in the study is deductive, which test the validity and accuracy of theory about the phenomenon (Elo & Kyngäs, 2007). There are several ways to analyze qualitative studies. In this case, I analyze the intention of the sources used and how to analyze the interviews (Johannessen et al, 2006). To obtain the intention of multiple sources, it is important to categorize the data to obtain the most essential themes in the context of the study (Berg, 2001). The data was collected, e.g. transcribed interviews, documents and notes from interviews, observations and internal meetings. This resulted in a general impression of the material gathered. Furthermore, I coded the texts in categories within the different propositions. In addition, which part was relevant in the different phases of the procurement process. The coding highlights the most significant elements in the study, and distinguish what is more relevant to the research question. I sorted the data within the different categories to reveal similar statements, patterns, relations and common feature or differences. Then, the sorted data were examined to identify significant patterns or processes. It involves contextualize the material, to design new concepts and descriptions. Finally, the findings was considered in comparison to prior theory.

However, the qualitative approach has some weaknesses (Berg, 2001). It is time consuming, as multiple sources have to be checked and analyzed, whereas the acquired information often is complex. Due to the large volume of information, it requires greater clarity of goals to avoid poor structure. It is also criticized for being nonscientific and invalid, due to the finding are not generalizable to other settings (Berg, 2001).

Open-ended interviews

Open-ended interviews are different in relation to how they are structured. In this case, I have used unstandardized interviews, which is non-restrictive, and semi-standardized interviews, which is more restrictive (Berg, 2001). The un-standardized interviews took place during my exploratory study in Kampala. The representatives was the project coordinator assistance, system administrator in the user department and procurement officer. This type of interview have no fully predetermined list of questions to ask (Berg, 2001). It is essential that the interviewer develop, adapt and generate follow-up questions in the given situation. Due to inadequate knowledge about the project, especially how they operated their procurement process, follow-up questions was necessary. All though it was my first meeting with the participants, I had few problems with collecting comprehensive information. The semi-standardized interviews took place at University of Agder and at Makerere University. The representatives was project coordinator, project coordinator assistance, technician, head of user department and procurement officer. This type of interview involves numbers of predetermined questions, where the interviewer asks questions in a systematic order and s allowed to go beyond their prepared questions (Berg, 2001). The interviews were all recorded, to strengthen the construct validity in the research.

The interview guide includes demographics, the project and the people involved, communication and interaction between the different parties involved and the procurement process. In the interview guide, I focused on making the questions open and not closed. This is difficult, especially in this case relying on people from a different culture. I also considered affectively worded questions to avoid a negative attitude. For instance, I put in "to what extent" instead of "why" many places, due to the word tends to produce a negative response in most people (Berg, 2001). Finally, I avoided

asking double-barreled questions. When asking more questions in one sentence, the interviewee will often choose to answer only one of them and it is more difficult to analyze (Berg, 2001). I also considered the length of the interview, but not as a significant factor. Even though I knew that one hour was long, I had to include enough questions to ensure adequate data collection considering the uncertainties.

Archival Records

Archival records is used in conjunction with other sources of information in this case study. Internal documentation from the procurement department, such as Procurement and Disposal Manual at Makerere University. Forms used in the procurement process, and evaluation documents with specifications from procured equipment in DELP has also been reviewed. This was important to make a comprehensive understanding of the procurement process. The specifications from the procured equipment in DELP are also contributing to the analysis. In addition, the project's application form, implementation plan and approved budget are considered. They have contributed to understand the project scope in the exploratory phase and been a valuable source to project description. However, the archival records alone are not conclusive. They are to a great extent used to support the other sources of evidence. Thus, they will be worthy for further research.

Observation

Observational evidence is often useful when providing information about the topics, because it can add a new dimension of understanding of the context or phenomenon studied (Yin, 2014). For instance, like in this case, the actual context of the environment that affects the work place, or the use of technology and the problems encountered. The purpose of both observations was also to observe the members behavioral context, especially in terms of how they interact with each other, communicate and collaborate. It was important to understand their work morals and the circumstances they work in to be able to consider which factors that influence their work. There has been used direct observation with a less formal data collection to add value to this study (Yin, 2014). During both of my stays, the people have been very welcoming. However, the manners of people in Uganda are to be very welcoming, and there was certain times they spoke their mother language. Whether or not that was because I was there, is not possible for me to judge.

Informal meetings and discussions

Informal meetings regards spontaneous gatherings with people involved in the study. It can be discussions about a certain topic, or just a casual conversation regarding issues or solutions considering the research. During my research, I had informal meetings and discussions with members at the University of Agder, supervisor, members at Makerere University and from Norwegian Agency for Development Cooperation. Thus, it has resulted in valuable inputs during my research process and contributed on the final research question.

4.2 Quality of the research design

The quality of the research design is evaluated by construct validity, internal validity, external validity, and reliability, like presented by Yin (2014). For each subsection, the validity and reliability is discussed to consider whether it is strong or weak in the context of the research.

Construct validity

Construct validity consists of identifying correct operational measures for the case being studied(Yin, 2014). In this thesis, multiple sources of evidence is used as a tactic to increase construct validity. The tactic is relevant during data collection, and will encourage to collect convergence of evidence (Yin, 2014). Construct validity is challenging in case study research, due to the researcher often fails to develop a sufficiently operational set of measures (Yin, 2014). An issue to consider when evaluating construct validity is measurement error (Bagozzi et al, 1993). These errors refer to the variance attributable to the measurement method, like archival biases, key informant prejudices or limitations, halo effects, social desirability and acquiescence (Bagozzi et al, 1993). For instance, the archival records can be distorted or falsified (Jacobsen, 2005). They can also be used for another purpose than gathered for. However, there has been relied on relevant data accepted by the Norwegian Agency of Development Cooperation and Makerere University. Thus, the archival records are not considered falsified and only used to gather information about the procurement process in the project. Key informant prejudices and limitation of sharing information can occur from the informant perceptions of the research, based on particular knowledge or position in the organization (Bagozzi et al, 1993). There is reason to believe the informants held back on information about issues regarding corruption. However, they shared a lot

of information, and was willing to help and very welcoming. In addition, case study research generally tend to be more subjective because researchers have a close and personal contact with the organization and people examined (Riege, 2003). Hence, it is important for the researcher to refrain from subjective judgements during the data collection, to enhance construct validity (Riege, 2003). Thus, I have been working closely with the members for two periods of one week, and may have been subject to halo effect. This occurs when the observer likes one aspect of something, and have a positive predisposition toward everything about it. In addition, if the observer dislikes the aspect, they will have a negative predisposition towards everything about it. Although this could be the case in the exploratory research, especially during my first stay in Kampala, I eventually obtained a more holistic view of the situation when achieving complete understanding of the project. By relying on multiple sources of evidence, also known as data triangulation, the construct validity is maintained in this report (Yin, 2014). For instance, it was important to verify aspects from the procurement theory, the Procurement and Disposal Manual at Makerere University, and the participants who performed the procurement process in DELP. Also, guidance from my academically supervisor, which has in-depth knowledge and experience with procurement. Hence, a more holistic and comprehensive comparison of different perspectives and opinions are achieved.

Internal validity

Internal validity consists of explaining how and why certain conditions lead to other conditions(Yin, 2014). If the investigator fails to deal with factors that may have caused the conditions in the study, the internal validity is weakened. To ensure the results to be accurate, and that the conclusions drawn from the sources used are coherent with the truth, there are measures to check (Jacobsen, 2005). In practice, the only way to argue for a right conclusion is to ensure that other people agree. To ensure internal validity, there has to be a critical judgement of the results. One way to control the results is to confront the participants that take part of the study with the results (Jacobsen, 2005). This will give an indication whether or not the respondents are familiar with the conclusions drawn from their response. In this thesis, a figure of the issues related to the procurement process were presented to the participants at Makerere. The validation method is called face validity, and consists of accepting the description of the case because it seems reasonable and relevant to the people who are expected to know of the phenomenon from the inside (Jacobsen, 2005). However, the method is also limited. A big part of the research is to reveal

conditions the participants may not be aware of. Hence, findings the respondents are not familiar with can be valid too.

Another approach to strengthen the validity is to compare the results with other studies (Jacobsen, 2005). If there is a concurrence between one or more studies, the validity is strengthened, but the results are not necessarily correct. The validity is higher if other researchers conclude the same, but with the use of other methods (Jacobsen, 2005). This is referred as method triangulation. Hence, the use of multiple sources to investigate the same research to strengthen the validity. It is also important to consider the prior theory related to the topic. Achieving the same results as other studies, with the use of other approaches, the validity is considered strong (Jacobsen, 2005). For instance, my thesis resulted in many equal critical factors as other researchers highlights in their studies. However, projects are singular, especially development projects, which made it difficult to achieve an accurate comparison.

The researcher must always be critical to the sources used in the study (Jacobsen, 2005). It is important to consider the variety of sources used and if they have conveyed the right information. Thus, a review of the analysis is critical, to see how the results reflect the data and that the context described is real, and not the researchers constructions (Jacobsen, 2005). A problem can occur when the researcher do not get access to the sources, e.g. informants, situations, documents, which gives the right information. A critical review include an explicit description of the sources not accessed, and the reason for it. In this thesis, a significant problem was to get access to comprehensive information of all the steps in the procurement process. Due to some activities in the process is influenced by complex circumstances (e.g. corruption), there are several parts not considered comprehensively.

External validity

External validity defines the domain to which a study's findings can be generalized, regardless of the research method used (Yin, 2014). However, the purpose of qualitative methods are normally not to generalize the findings to a larger group, but to understand and elaborate concepts and phenomena (Jacobsen, 2005). The qualitative method will be strong relying on a theoretical generalization, which includes a smaller group of informants. Even though the informants give

comprehensive information, it is not representative to a larger population of units (Jacobsen, 2005). Due to relatively short time and capacity to perform the research, few informants, documents and situations are required to get in depth information in qualitative studies. Thus, it is difficult to claim that the results can be generalized. If the same results are presented from different informants and other sources, there is reason to argue that this is a common view of the problem. However, the findings cannot be argued as generalized with proof, only considered as reasonable (Jacobsen, 2005). The singularity of development projects makes it difficult to generalize the findings. For instance, the procurement process will vary, especially from private to public sector. In addition, the scope and the people involved has a great impact on the project, which is difficult to compare within projects from different cultures. However, it is likely that many of the same factors influence other purchasing processes and similar issues will occur in other projects, particularly development projects. For instance, the market conditions, which reduce the availability of products in the local market in Uganda, will probably be a critical factor in the procurement process of other African countries. Hence, the research will contribute to theory of critical factors and criteria in the procurement process of development projects, especially which factors and criteria to consider in the implementation of the procurement process to achieve project success. In addition, if the project expand to other universities in Uganda like planned, it will be a good contribution to their implementation of the procurement process.

Reliability

Reliability demonstrates that the data collection procedures can be repeated, with the same results (Yin, 2014). Hence, the degree of reliability is maintained when the data are not affected by the data collection methods the study rely on. Jacobsen (2005) considers two main categories, the data collection methods' effect on the results, and sloppiness in the data collection. Due to use of qualitative methods, it is unlikely to achieve the exact same results. However, the participants responsible for the procurement process in DELP are not too many, which makes it reasonable to assume that the researcher would get in contact with the same people if the study regarded the same issue. Thus, this can vary, if the team members change. In addition, my relationship with the University of Agder was important to get access to further information from team members at Makerere University. Especially to build their thrust to me, and make them understand that I was there to do research for them, and not about them. If the relationship is built in another context, it

may result in informants sharing different information. Although, there is no reason to believe that the informants would give another approach of the procurement issues. However, the informants might share more information about the corruption in the procurement process, which I did not emphasize in my research. In addition, flexibility to be around when they have time and patience to wait for it are key-elements to repeat the procedure. In addition, other researchers could possibly emphasize different factors and criteria in the interview structure (e.g. corruption). I chose to consider the critical factors and criteria prior theory showed, to see if the issues was the same for the case studied. It is also important to consider that the research is context specific. As development projects are singular, the results will probably be different in other projects. Although, there is reason to expect similar factors affecting other procurement processes. Sloppiness in the data collection process and analysis can also reduce the reliability. Consequently, I have recorded the interviews, and transcribed them for further analysis. In addition, notes have been taken during observations and after informal meetings and discussions. Furthermore, ambiguities have been questioned to the informants for straighten out possible distortions. There is less likely that the reliability is reduced due to sloppiness.

5 Discussions and analysis

The chapter presents the discussion of the findings from the different methods used in the data collection. To assure available equipment in the project, and more likely achieve project success in DELP, there are several factors and criteria found critical to the purchasing process. As the participants did not consider the procurement process comprehensively in the implementation of the project, it is crucial that they understand the extent of which factors influence the different criteria considered in the process to achieve project success. As it is now, the members in DELP start the procurement process months before, to ensure the equipment are delivered according to schedule. However, there is a lot of equipment to be purchased this year due to the first year was delayed. To be able to perform the workshops as planned, and get the training and support they are depending on from the University of Agder, they rely on procurement of equipment. Hence, if the equipment is not available at the right time, there will be more delays, and what is planned to be completed in 2018 may not be achieved.

Furthermore, the findings are analyzed in accordance with prior theory presented in chapter three. Prior research provide factors that influence the decision-making process, but do not distinguish the factors that are depending on specific buying situations (Verville & Halingten, 2002). Development projects are often singular, influenced by a diversity of factors (e.g. environment, culture, work ethics) that will vary from one project to another. Hence, it makes it difficult to make an accurate comparison between DELP's procurement process and results from prior research. However, it makes it even more interesting to analyze DELP's procurement process and highlight what is critical to the specific situation studied. The procurement process in DELP is very complex itself, due to regulations, which makes it time-consuming. In addition, very critical due to influencing factors that makes in even more time-consuming and results in higher total costs. Thus, some factors are difficult to handle, and some is easy to avoid. Hence, the critical factors are analyzed to understand which criteria that are more important to emphasize to achieve a procurement process that contribute to project success. First, the different tasks and influencers in the procurement process in DELP is presented. Second, critical factors in the decision making process. Third, critical factors in the overall procurement process. Finally, the criteria found to be influenced in the procurement process.

5.1 Purchasing process in DELP

Table 2 illustrates the procurement process used at Makerere University, which is in accordance with the Public Procurement and Disposal of Public Assets Authority. The procurement process presented is based on Makerere University's Procurement and Disposal Manual and response from interview objects influencing DELP's procurement process. Among the products purchased, there are equipment for computer laboratories, live recording of lectures and video conferencing facilities, which is budgeted for almost 3 million NOK. As the process must follow the Public Procurement and Disposal of Public Assets Authority comprehensively, there are restrictions to follow, which make the activities complex and time consuming. In addition, there are extra activities required by project coordinator assistance in DELP and support from other stakeholders. The project coordinator assistance is mainly responsible for submitting the forms to the right recipient. Among the forms, number 5 includes specifications (e.g. subject of procurement, location of delivery and date required, quantity and estimated total cost and market price), recommended bidding method (e.g. request for quotation, restricted domestic bidding, restricted international bidding, open domestic bidding or open international bidding), prequalified suppliers, names of recommended evaluation committee and attached bidding document.

Table 2- Procurement process in DELP

No.	Activity according to Procurement and Disposal Manual	Additional activity according to interviews	Responsible Office	Estimated Duration PDM[2]	Estimated duration DELP[3]
1.	Initiate the procurement requisition and prepares Form 5	Consultation with users and project coordinator of DELP	User Department	5 days	max 14 days
2.	User Unit submits Form 5 plus specifications	Consultation with members at the University of Agder, project coordinator or DICTS[4].	User Department	2 days	9-12 days
3.	Accounting Officer confirm funding	Coordinator assistance request Form 5 for approval of fund by the accounting officer.	Accounting Officer	3 days	7-14 days
4.	Review of specifications. If approved, part 2 of form 5 is prepared.	Coordinator assistance submit form 5 and specifications to Procurement Officer.	Procurement and Disposal Unit	4 days	2-5 days
5.	Approval of procurement method, bidding document and evaluation committee		Procurement and Disposal Unit	3 days	7-14 days
6.	Advertisement of bids. Bidding process. Receipt and opening of bids.		Procurement and Disposal Unit	18-40 days	30-90 days
7.	Evaluation of bids		Evaluation committee	5-10 days	2-5 days
8.	Approval of evaluation report		Contracts committee	5 days	14-90 days
	Display of best evaluated bidder notice		Procurement and Disposal Unit	10 days	10-15 days
	Approval of the contract document if value> Shs. 50 million(130000 NOK)		Solicitor General Office	10-15 days	30-90 days
9.	Signing and issuance of the contract document to the best evaluated bidder	Coordinator assistance ensure document signed by all required representatives	Accounting Officer	3-5 days	5-30 days
10.	Delivery of the Supplies/ Performance of the contract	Coordinator assistance expedite the order.	Management DELP	5-60 days	14-60 days
11.	Verification of the goods, services or works provided.	Ensure supplier install and test equipment	User Department	2 days	2-14 days
	Processing of payment for the supplier	Coordinator assistance forward certificate to accounting officer.	Accounting Officer		
12.		Maintenance and service. Support of using the equipment.	User Department		
Total lead-time				90-179 days	146-453 days

[2] PDM is acronym for Procurement and Disposal Manual

[3] DELP is acronym for Distance Education Leapfrogging Project

[4] DICTS is acronym for Directorate of ICT Support

The purchasing process presented indicates that the lead-time of the procurement process will vary. The estimated duration stated in the Procurement and Disposal Manual takes into account the different bidding methods, which mainly depends on the price of the product or service, and the time of order delivery. However, it does not consider the characteristics of the product or service purchased, which will influence the identification and specification of needs, amount of adequate bids and after sale service among others. For instance, standard products with value less than 50 million Ugandan Shilling (Shs.), which are available in the local market, could likely result in a lead-time of 90 days. Furthermore, after service, maintenance and spare parts will more likely be available in the local market. However, the equipment purchased in DELP, are all new products and have not been purchased at the University of Makerere before. In addition, several products are not common in Uganda and not available in the local market, which lead to lack of people with adequate knowledge about the equipment, among the local vendors and the staff at Makerere University. As the bids are advertised to local vendors only, there are often few bids. Furthermore, the qualified vendors do not have the equipment in stock, due to the technical equipment are rare in the country. Even though the contract include specification of equipment needed and that time of delivery is within two weeks, the uncertainty of receiving the right delivery on time is high. Of the equipment purchased, there has been delays of order delivery and equipment that arrive with the wrong specifications.

According to members of DELP, the lead-time of the procurement process will be at least 146 days (almost five months). They consider four months acceptable, whereas three months is the process of the procurement department (activity 1-9), and one month is the time the vendor spend to deliver the order. Unfortunately, the process from identifying the needs, to signing the contract, normally takes at least four months, and the duration of order delivery is often at least two months.

5.1.1 Influencers in the procurement process

The procurement process at Makerere University use the Procurement and Disposal Manual hand in hand with Public Procurement and Disposal of Public Assets Authority, which consists of regulations and guidelines containing all details of how to perform the process. The manual serve as a simplified reference for all people with responsibility of handling procurement and disposal activities. The functions of the key players in the procurement and disposal process shall ensure

that the activities are performed in accordance with the legal requirements and act independently in relation to their respective functions and powers. The relevant responsibilities are described in accordance with the procurement and disposal manual.

User Department

The user department consists of the head of user department, system administrator, technician and a computer lab assistance. They are responsible for identifications of needs, specifications of needs, evaluation of bids, verification of delivery and maintenance of technical equipment. There is one person responsible as the system administrator and technician, which has been the situation since December. In addition, the head of the user department is located in Norway, at the University of Agder. However, the head of the user department is available to give advice through skype and e-mail. Due to the user department are responsible for several tasks in the procurement process, the reduced staff has made it more difficult to perform the different activities and demanded more support from project manager and the Directorate of ICT Support.

"It was easier when the system administrator was here (...), we need our technical people to perform the activities in the procurement process"

Accounting Officer

Accounting Officer have the overall responsibility of a successful execution of the procurement, disposal and contract management processes in Makerere University. Accounting officer shall certify the availability of founds prior to the commencement of any procurement activities and submit reports required by the Public Procurement and Disposal of Public Assets Authority and regulations by the Authority. He or she shall establish the contracts committee, appoint the members of the contracts committee and ensure that the implementation of an awarded contract is in accordance with the terms and conditions among other.

Procurement and Disposal Unit

The procurement and disposal unit is responsible for approval of procurement method, preparation and execution of the bidding process, evaluation of bids and display of best-evaluated bidder. The procurement officer is responsible for all procurement related to DELP, who has great knowledge of the project and a good relationship with the management of DELP.

Evaluation committee

The evaluation committee shall evaluate the bids and prepare the report required for submission to the contracts committee. The members are required to possess technical skills and experience relevant to the products procured, and shall always include a person representing the user department and a member of the procurement and disposal unit. The member from the user department can not be a member of the contracts committee. Mainly, the evaluation committee consist of representatives from the user department, the procurement officer, management of DELP and the Directorate of ICT Support. In addition, the accounting officer and lecturers have been represented a few times.

Contracts Committee

The contracts committee is responsible for approving the evaluation report and award of contract, bidding and contracts documents and procurement and disposal procedures. In addition, ensure compliance with the Public Procurement and Disposal of Public Assets Authority, and attend bid opening and contract negotiations meetings. The committee contains of five members, where one is a lawyer. The quorum for the committee meeting shall be three members.

Solicitor General Office

Solicitor General approve the contract if the value of the product(s) purchased are more than 50 million Ugandan Shillings (estimated 130000 Kr.).

Figure 6 illustrates a flowchart of the activities mainly considered in the procurement process, emphasizing the tasks where members of DELP have an influence. The numbers of the phases is in accordance with table 2, and is illustrated to achieve a better picture of the decisions (red square) and processes (grey square) that are further discussed to be influenced by critical factors. The payment process is not included, due to it does not influence the availability of equipment, and is not discussed any further.

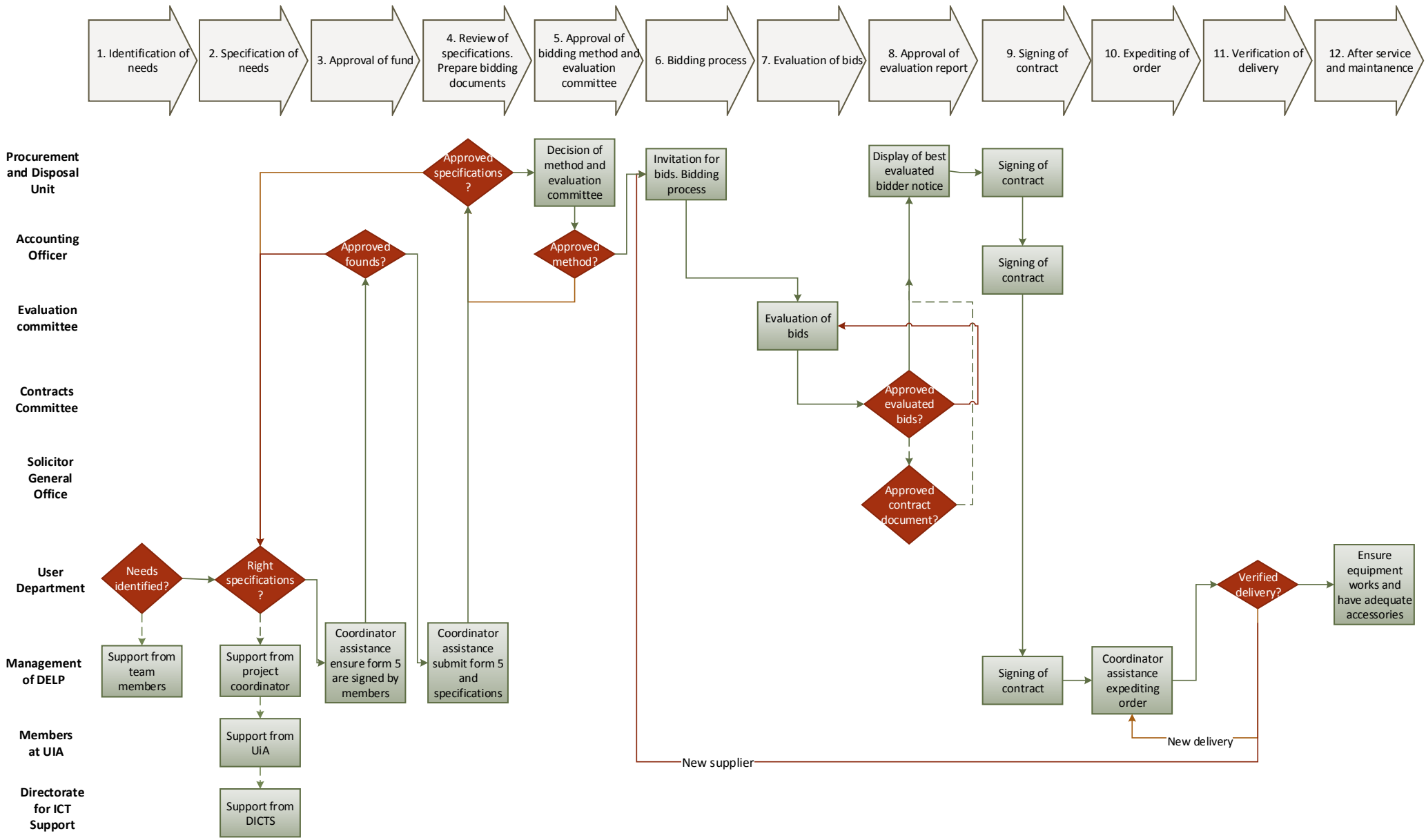

Figure 6- Flowchart of procurement process in DELP

5.2 Variables in the decision making process

As the delivery of the equipment have been delayed and not delivered with the right specifications, there are several factors considered to influence the activities in the procurement process. The user department and management of DELP are responsible for several activities in the process, among them, there are specifications of needs, evaluation of bids and expediting of delivery. According to prior theory, problems regarding delivery (e.g. products are delivered to late or not according to specifications) can usually can be tracked back to the three activities. Thus, they are considered to be influenced by different factors. In this section, personal factors and environmental factors are considered to show how they appear critical and will influence the activities in the procurement process.

5.2.1 Personal factors

The personal factors considered critical to the decision making process are personal skills and social skills. Commitment is considered important to the performance of the members in the procurement process. However, it is not found to be critical to the decision making.

Personal skills

Personal skills in the user department and procurement and disposal unit are considered critical to several tasks in the procurement process. First, to make adequate specifications to avoid delivery of wrong equipment. Second, to ensure the pre-qualified suppliers are qualified to deliver the equipment needed. Third, to verify the delivery, to avoid accepting a delivery that is not according to specifications. Finally, to maintain the equipment and train students and teachers on how to use it. To reduce the lead-time, ensure right market price and quality of the equipment, which could result in lower total costs, personal skills are discussed and analyzed.

To specify the needs, adequate knowledge of the products, and what options are available in the market are required. The representatives from the user department possess knowledge and experience with technological equipment. The technician have studied ICT with a major in tele communication, and have worked in several organizations within ICT, like the American Embassy among other. However, a lot of the equipment purchased are not known to the user department, and not available in the local market. The new technology is challenging to identify, mainly because

they do not know how it works. To ensure the specifications are according to budget and what they need, the technician get advice from the head of user department if necessary. Furthermore, the head of user department consult with other members at the University of Agder. Thus, they know how to use it, and recommend the products they know of.

"It is challenging, especially for equipment you have never used. How I do it (…) I ask somebody with expertise, like people at the University of Agder. Like how should we use it, how should we specify this."

In addition, the user department get advice from the project coordinator who has great knowledge of ICT-equipment (master in computer science and PHD in information systems, specializing in distance e-learning) and the Directorate of ICT Support.

"We really need someone with knowledge when specifying the equipment. That is why we work hand in hand with the Directorate of ICT Support."

Adequate knowledge of the equipment in the user department, could lead to less consultations and support from other stakeholders, and reduce the lead time of the process. Even though the Head of User Department and Directorate of ICT Support are easily available, the specifications of needs would probably be more effective if the user department were located in the same building and possessed adequate knowledge to perform the task without support.

Personal skills are also found to be important to establish requirements to the vendor, to avoid delayed deliveries and higher total costs. The specifications states that the delivery shall be within two week from signing the contract.

"And there is another delay on the side of the supplier. Even if we state that within the two weeks, the product will be there (…) they do not respect that."

The members of DELP do not think that the vendors respect the specifications of time, due to delays of equipment is common. The vendors selected do rarely have the products in stock, and do not always know about the product stated to be delivered. Hence, it could be an advantage to the total costs and lead-time of expediting to consider incentives among the specifications. For instance a reward if the vendor deliver on time, or fines for every week the delivery are delayed. However, the issue of not getting any bids from the local vendors could occur if fines are specified. Thus, the international market is an option that could be considered in the bidding method. However, to have adequate after service easily available is important to consider in the long-term view. The

consideration depends on the complexity and uncertainty of the equipment purchased. Thus, the decision of which specifications are needed to ensure on time delivery and reduce the total costs, need personal skills within the procurement officer and user department, who decides the specifications and bidding method.

Due to the vendors do not deliver the equipment on time, and often deliver the wrong equipment, it seems critical to ensure the vendor is pre-qualified to deliver the particular equipment required. The Directorate of ICT Support are responsible for prequalification of suppliers, which is performed in advance of every year. This ensure that the products offered by the vendor, satisfy the minimum requirements. An overview of the prequalified products are available online. Thus, it makes it possible to access information about the specifications, and compare the products needed. In addition, if necessary, require higher standards.

"Before every year, companies come and they bring in their award, and the Directorate of ICT Support specifies the minimum requirements."

Thus, personal skills are required by the Directorate of ICT Support to ensure adequate pre-qualified suppliers. However, some of the equipment needed is not available in the local market, and some are not known to the prequalified vendors. When the equipment is not prequalified, the user department can decide the specifications. Furthermore, they need a final approval from the Directorate of ICT Support.

"If an item is not prequalified, for example the video conference facilities. I can make the specifications if I know. But then, I must take them to Directorate of ICT Support for approval."

As there are many new products purchased by the project, it is likely that the equipment are not prequalified. Thus, it is important that the user department ensure the equipment is prequalified and available within the prequalified vendors. Due to some vendors do not deliver the equipment required, the evaluation committee should consider to evaluate the vendors on other terms than only price and quality. There has been selected vendors, based on the prequalification of delivering other ICT equipment.

"But Makerere sais, if they have been prequalified, they can also supply other ict equipment. We said fine(…) they brought the cameras here(…) they were completely far below the specifications."

The cameras was not common within the country, and the vendor selected was not prequalified to deliver the exact equipment. Furthermore, the vendor was not familiar with the equipment when giving the bid.

"The supplier started looking around in the market, but could not get it (…) continued looking around, and found a place where they did not supply to Africa. Somehow he managed to convince them, and they supplied here."

The camera was awarded in February, and the specified equipment was delivered in October. This indicates that personal skills are required, to ensure the vendors evaluated are qualified to deliver the equipment needed, and consider the vendor's previous experience and reputation, not only costs and quality of equipment.

The verification of delivery is crucial to consider, especially if the vendor is not considered carefully and expediting of order is not conducted thorough. The user department and management of DELP consider the technical skills as very important when verifying the equipment, due to the vendor sometimes tries to give them similar products, with lower costs.

"We really need our technical people to ensure we do not waste our time and money(…) They have tried to give us a 17" screen, when we asked for a 21" screen."

If there is lack of people with technical skills available when verifying the delivery, it can lead to accepting equipment they can not use for the purpose needed. The computer screens purchased was specified to 21", due to the students share computers. What seems to have a small significance could result in poor quality of learning outcome of several students. Due to the vendor do not necessarily deliver equipment with specifications required, it is critical that the user department possess adequate skills to verify the equipment needed.

"A challenge which has occurred is that the supplier bring equipment that lack a small part."

However, there are several activities to consider that could reduce the risk of receiving the wrong equipment (e.g. prequalified vendors and expediting of order). Thus, the equipment purchased so far, shows that there is a high risk of receiving equipment with inadequate specifications. Hence, the user department need personal skills to reduce the risk of wasting time and money and ensure to get the requested quality of the equipment.

Furthermore, the vendor install the equipment and show how to use it when delivered. The user department do not always know how to use the equipment, and rely on the instruction given by the vendor when installed. Hence, technical skills are considered essential to understand how to handle the equipment when the supplier install it and shows how it works. This is important to be able to train the users on how to use the equipment after installed.

"When the supplier showed everyone how it is handled, because it is a bit complicated. It is necessary that they show us, so we can show other people. The teachers especially need to be trained, otherwise we would just be wasting our money."

Personal skills to ensure adequate after sale service is crucial to ensure equipment available to satisfy the users. Until now, most of the equipment is still quite new, and there has not occurred any significant problems with the equipment itself. However, accessories are not easily available in the local market, and wrong deliveries of orders results in additional delays.

A challenge is the accessories of the equipment (…) we cannot get it here, and they will have to ship them in. (…) they can bring in a brand, and we have to reject it. Sometimes it can delay the process until we get what we need.

In the future, it is crucial to have technicians with technical skills available, due to the equipment purchased is difficult to use without training. There will probably be more people that need training and more people that need help to solve problems regarding the equipment, which makes the personal skills critical in a long term view. Technical equipment will need service and maintenance, and there are reason to believe there will be need for support on complex and easy problems. Hence, adequate technicians to train others to use the different equipment and to help when it does not work adequately will be crucial to use the equipment for its purpose and achieve user satisfaction. In addition, if the technicians possess adequate skills, there will be less demands of external service, which will reduce the time of fixing the problem and result in higher user satisfaction.

Social skills

Social skills are considered critical, due to several activities seems to be time-consuming due to levels of communication within Makerere University, and lack of communication with the vendor. In addition, the user department rely on cross-functional interaction with members at the University of Agder to specify the equipment, which rely on communication online. Due to the internet

connection at Makerere University is poor, and the electricity frequently shuts down, the communication online is not considered adequate.

Due to the bureaucratic organizational structure, the level of communication seems to affect several activities. Activities depending on the accounting officer can be time-consuming, due to levels of communication. As the accounting officer is their boss, who is highly respected, the tasks are performed on the accounting officers terms (e.g. approval of funds, signing of contract).

"It also take time to get the form signed by the accounting officer, it may take 1 week, two weeks(…) The accounting officer is our boss, so you can't go there and force him to sign. So it takes time."

The technician in the user department highlights the levels of communication in several activities.

"I don't talk to them so much. Because there are levels of communication, so for me I talk to the project coordinator assistance"

Due to the accounting officer and members of the contracts committee is in a higher level in the organization, the project coordinator assistance or project coordinator need to be the middle man between them and the user department. This explains the additional tasks performed by the project coordinators assistance in the procurement process. Even though it is necessary due to the levels of communication, it would probably be more effective if the person responsible for the task contacted the person responsible to perform the next task. E.g. when the user department specify the needs, they could forward the specifications to the accounting officer right away, instead of using the coordinator assistance as an additional link. However, the project coordinator assistance's responsibility is considered critical to the interaction between the different responsibilities.

Furthermore, the interaction with the vendor during expediting is considered critical, to ensure the product is delivered on time and with adequate specifications. The project coordinator assistance regularly call the vendor, to remind them of the order. However, products have been delivered with wrong specifications and with several months of delay. To ensure the supplier deliver the products according to the specifications, it is considered important to interact with the vendor to make agreements of the conditions regarding the expediting (e.g. inspections, range of phone calls, e-mails). In addition, it should be considered to send a verification of the equipment purchased to cross check the equipment handled has the specifications required. This is not practiced, and is even more important when the vendor order the equipment from other suppliers. The verification could reduce the risk of receiving an equipment with wrong specifications, which lead to additional

months to wait for a new delivery. In addition, it is important to communicate with the vendor to ensure the delivery is installed the same day of delivery, to avoid more delays. Hence, communication and cooperation with the vendor is important factors that could influence the lead-time of the process and ensure the quality requested.

The interaction with members at the University of Agder, including the Head of the User Department is considered critical to the specification of needs, due to the poor internet connection. The project coordinator and Directorate of ICT Support are available at the university, which makes it easy to contact them. However, the head of the user department and members at the University of Agder are mostly available on skype and by e-mail. The members consider them to be easily available due to a very friendly relationship between the stakeholders and access to internet.

"The head of user department and the project coordinator are easily available. It is very easy, because with the availability of internet here, at the office, we always talk."

However, the communication online is affected by the access of electricity and broadband capacity. The power is frequently off, at least once a week, often for more than one day. In addition, the internet access is unstable and not accessed by wifi.

"It is frequent altitudes of electricity. It is suddenly out, not only for an hour, but for days. And the broadband is not adequate (...) The information flow has been good, but sometimes the internet is down, and that makes life difficult."

According to the project plan, the internet capacity is supposed to be improved within the year. When they improve the internet, the interaction with the members at the University of Agder will more likely be less critical due to easier access to internet (e.g. skype and e-mails). In addition, the user department will probably have easier access to the updated information in the supply market, which makes it easier to interact with the members at the University of Agder, and understand their recommendations.

5.2.2 Environmental factors

The environmental factors found critical to the procurement process are regulations, market conditions and bureaucratic organization structure. They are considered critical to several activities. However, they are difficult to influence by members of DELP.

Regulations

The members of DELP's biggest concerns are the regulations that demand the time of certain activities in the process, especially the advertisement of bids, bidding process and display of best evaluated bidder notice.

"The common cause for delay is through the procurement process, when they are declaring and sending out awards, return of bids, screening bidders and opening of bids"

However, the procurement process in Uganda demands the regulations to avoid corruption and fraud among others. Corruption through bribery in procurement is one of the major reasons that impede achievement of value for money, which will have a negative effect on the cost benefit of the product procured. Thus, the members understand why parts of the process takes a lot of time

"But it is understandable that it takes long time, because it is suppose to remove any suspicions (…) any corruption, all those things can be removed."

Market conditions

The market conditions influence the availability of products and service in Uganda and number of qualified local vendors, which will influence time, quality and total costs of the product purchased. The project purchase equipment that are known to the local vendors, but not available in stock, due to the rare use of the products in the country. Furthermore, they purchase products that are not known to the local vendors and not available in Uganda.

"It is less likely that the supplier we order from have it on stock. Most of those we supply from, supply from another supplier(…)because the kind of equipment we ask for, is not common."

Hence, the marked conditions are considered unfavorable to the project's needs. Lack of available equipment in the local market and lack of knowledge about the equipment among the vendors will influence the socio-economic objectives of purchasing new technology, which does not fulfill the needs of timeliness, quality and total costs of the procured equipment. An essential problem that occurs due to the equipment needed is not available in Uganda is lack of selection of qualified bidders. Furthermore, the competition on price will be reduced with fewer bids. Thus, it is possible to choose an international bidding method. However, it could result in a higher risk of not having available after sale service. Without available after sale service when needed, it could affect the timeliness of the service, and the total costs and would likely be higher in a long-term view. In

addition, equipment have been purchased through the Univeristy of Agder, to reduce the lead time of the process. However, Norwegian Agency for Development Cooperation (NORAD) require that the process is performed in Uganda, and demands solid arguments to make it possible. However, it will also result in higher risk of after sale service available.

The bureaucratic organization structure

The bureaucratic organization structure will affect the process in several ways, especially due to levels of communication. However, the activity found to be critical due to the organization structure is the approval of the evaluation report. Due to the members of the contracts committee is within a higher level in the organization, they possess more power. According to the members in DELP, the activity is considered a major bottleneck to the process due to the difficulties of getting quorum.

"The contracts committee may not sit, because some members are busy somewhere (...) They can postpone it to another meeting"

The circumstances regarding what is acceptable behavior within the contract committee and the reason why they sometimes spend several months to sit in the meeting is complex. However, based on conversations with the members in DELP, it is likely to consider that there is corruption involved to make the contracts committee sit, as they take advantage of their possessed power. Hence, there is reason to believe that the members of the contracts committee take advantage of the situation, and that the duration of the activity (from 14 to 90 days) is not only caused by the fact that the members of the committee is busy. The same issues are considered in the approval of the Solicitor General Office, which is within a higher level in the organization. However, it is only critical if the value of the purchased products are more than 50 million Ugandan Shillings. As the lead time of the procurement process can be extended with several months if the value is more than 50 million Ugandan Shillings, the costs of the products purchased is important to consider in the planning of when to start the procurement of the product.

Figure 7 illustrates an overview of the critical factors found in the different phases of the process. To summarize the possible causes of why the factors are critical in the phases, bottlenecks are presented with following consequences.

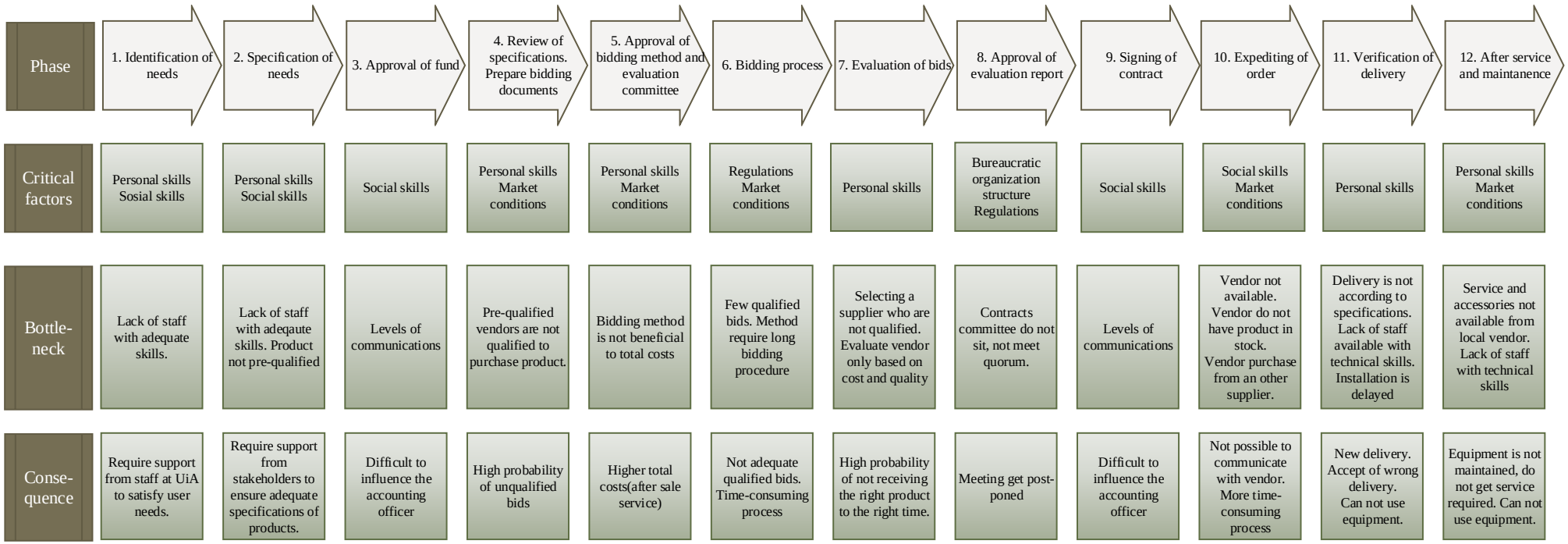

Figure 7- Overview of critical factors in the phases of the procurement process

5.3 Project success factors

In the overall procurement process, there are several factors discussed in the project management literature that are considered important, due to the procurement process is critical to achieve success in the project. Among the factors found critical, communication and cooperation, training, commitment and visibility and reputation of the project are found to influence the process.

Communication and cooperation

The communication and cooperation between the representatives of the buying center and the stakeholders involved in DELP is critical to the information flow of the process, which will influence the time spent on several activities. Due to equipment purchased are not all known to the user department, it is essential to cooperate with other stakeholders available. To obtain adequate information about the different equipment, the user department consult with Directorate of ICT Support, the University of Agder and project coordinator. Thus, their availability and the communication methods used are important to the communication flow. Project coordinator and DICTS are available at the university, which makes it easy to contact them. The head of the user department and members at the University of Agder are mostly available on skype and by e-mail.

"The head of user department and the project coordinator are easily available (...)If the user department cannot solve the problem, we can easily contact the Directorate of ICT Support"

The communication and cooperation with the Directorate of ICT Support is considered important to the service and maintenance available in the future. To have more people with technical skills in the department, will reduce the need for external support, which will save time and costs.

In addition, the members in DELP have a good relationship with the procurement officer representing the procurement and disposal unit, who has great knowledge of the project. The procurement officer is their contact person if they need help to prepare documents.

"I can easily contact the procurement officer (...)I take guidance from the procurement officer before I generate any documents."

The communication and cooperation with the procurement officer is considered critical, as the procurement officer has great influence on the procurement process and communicate at the same level as other representatives in the buying center.

However, there are issues with the web-mail system used at the university. Some use g-mail, but most people use the webmail with limited storage and ability to send large attachments.

"What I've told the other member in the team, is to open other addresses, because this is not working(...) with the webmail, it can take the whole day to get the e-mail. Especially if thee inbox is full"

As many of the members were introduced to use e-mail the last two years, and several still do not use it frequently, they should consider to implement an other web-mail system. Hence, to improve the communication flow. Thus, it will influence the communication between the different stakeholders, as well as communication within the buying center.

Training

It is important to train the participants involved in the procurement process to use the new technology, as the technology emerge in Uganda, and the communication by e-mail is rapidly more used to communicate. In a long term view, the use of e-mails will likely improve the access to other members in the procurement department and the information flow. In addition, the members of DELP consider it to be important that the user department are trained to achieve knowledge about the equipment purchased to train the teachers and students who use the equipment.

"Training is important especially because the project is bringing in more equipment that is not here at the university(...) for the more advanced things, people really need to be trained."

Hence, adequate training within the user department can obtain adequate knowledge of how to use the equipment to train the users. Otherwise, the equipment will not be used, and the users will not be satisfied. Furthermore, it could result in a higher risk of not achieving project success.

"The teachers especially need to be trained, otherwise we would just be wasting our money."

Commitment

Commitment to the project is crucial to all the activities in the procurement process. The representatives in the procurement department, which are not members of the user department, management of DELP and procurement officer, was found to lack understanding of the project. It seems that members of the buying center do not have knowledge of the project, and do not understand the urgency they are working with.

"I would say that less than 50 % of the procurement department have an understanding of the project. They do not understand, for example the time we are required to procure the things. They do not understand the urgency we are working with."

With lack of commitment to the project, the lead-time of the process will likely be extended. Thus, it indicates that the understanding of the project, the commitment to perform it in best possible way will influence time in particular. To feel ownership of the project can result in more commitment to the tasks performed. As the members in DELP see how their work contribute to the results, it is easier for them to care about the project and feel that they have an important part in it, compared to the other members in the buying center, who just take part in activities in the procurement process.

Project reputation and visibility

The projects reputation and visibility are found to have an influence on the members' performance and satisfaction. The members in DELP consider project visibility as important to their satisfaction and effort put in the project.

"What makes me proud and satisfied, is when I go where I worked and people are talking about what I did or what the project did(…)But suppose that it didn't work out, I'll have nothing to talk about. No prove that it was a project here. So in some extent, that makes me put in more effort."

"Cause then they can say that this is the person who has transformed the Makerere University."

This is particularly important to the members in DELP, who are not paid by salary to participate in the project. The proof of the results they achieve is a significance way to satisfy their needs. Hence, it is considered important that the project achieve success and that the results are visible at least within the university. So far, there is not enough people with knowledge about the project. Most important, not enough people involved in the buying center who knows about the project. In addition, the project's visibility can improve other factors influencing the procurement process. When people see results, they will know what they are working for, and achieve a better understanding of the project. When the results affect them as well(e.g. improved internet capacity), they will more likely get interested, which could influence the commitment to the project, and willingness to communicate and cooperate. Until now, the results are mostly visible to the students who use the computer labs and teacher who participate in the project. However, according to project plan and the members of DELP, the internet will be improved within the year. Thus, it could have an impact on the whole university, and make the project's milestones visible to everyone.

"And I know when we boost the internet, there will be a new world. The university will change. People will know how much NORAD has done to Makerere(…)It will be more visible, cause internet will show at the whole university, the impact will be fulfilled."

The members in DELP consider this as an enormous change to the students and teachers in particular, to get more people interested by making the transformation of distance learning more accessible.

"Because they are trying to see that students register online, and that the students get their results online. That cannot be achieved now, when the internet is very poor. So when the project boost the internet, I think we should have more people interested to participate in the transformation."

Thus, it implies that project visibility could have an important impact on the members working with the procurement process. To understand the projects impact, the results that have an impact on the people directly are the most effective. Hence, project visibility is crucial to consider to project success.

5.4 Project success criteria

The criteria considered by the members in DELP are mainly cost and quality, which is found to be important to achieve project success. In addition, user satisfaction and time is found to be critical.

"When we evaluate certain bids, we are looking at what they have, and what we are asking for in terms of price and quality."

The project are required to follow the budget where every activity have fixed resources, which makes it important to consider costs of the equipment purchased.

"It is very important that we stick within the planned costs, or spend lower. Because, we have fixed resources to certain activities(…) if we don't follow the budget, we will not be in position to achieve or complete the tasks"

The quality is considered important by the members in DELP, in terms of specifications requested. If the product purchased is not to be used for its purpose, it will not achieve value for money. This could result in waste of time and money.

We must be able to achieve all those activities planned(…) Not just delivery within the resources, but quality with value."

The satisfaction of users are found to be critical, due to the project will not achieve success if the users do not participate in it. Hence, satisfaction of the members of the procurement process is important, which is mainly influenced by project visibility and training. Furthermore, the students and teachers who use the equipment to transform distance learning is crucial to project success.

"There is nothing we have procured without asking for specifications from the users. For example the computers that we put in the computer lab(…) we gave them bigger screens as they asked for."

Although the resources are not enough to give every student their own computer, they find solutions who satisfy the users based on the activity planned. In addition, they consulted with the students and teachers when making the implementation plan. Other employees are satisfied by the project's goal, to transform distance education learning.

"One of Makerere's strategic plans is to mainstream open distance and e-learning, among the units at the university. That is why it is focusing on it, so our projects blends in with the university's strategic mission, with integrating open distance and e-learning."

However, they need to understand and be affected by the results to be satisfied, which is mainly influenced by the project visibility. The satisfaction of stakeholders was considered, but not found to be an essential criteria to the procurement process. The relationship with University of Agder is very important to get adequate technical support and training. Thus, they have a very good relationship with University of Agder, and the satisfaction of members of University of Agder's needs are not critical to the procurement process. However, if employees at Makerere University is considered as a stakeholder, and not users, their needs are critical.

Time is considered important by the members of DELP, as they now start the procurement process far ahead of the planned activity, to ensure that the equipment will be ready when it is supposed to be used.

"In this project, we are looking at time as a big element(…) It is very important that everything is done on time, or within time(…) that is why we start procuring everything far ahead, to ensure it will be there on time"

However, the time-consuming procurement process was not considered comprehensively in the implementation of the project plan. The delays of equipment purchased indicates that time is critical to achieve success in the project. In addition, there was delays in the beginning of the project, which made it even more critical.

"The first year of the project were delayed. So the activities at the first year, was brought to the next year. Unfortunately, most of them rely on procurement. So we have a lot of processes to go through, so ensure that this work out."

Furthermore, many activities rely on the procured equipment, which makes time spent on the procurement process critical to achieve success in the project. Hence, it is important to consider time, as much as costs and quality. To achieve an effective procurement process that can contribute to project success, it is important to understand which criteria that are more important to emphasize and which factors they are influenced by. Thus, it is important that all stakeholders involved understand the extent of the procurement process, and what consequences it will give in a long-term view.

If the procurement process results in more delays, the risk of not completing the project is high for several reasons. First, the fact that they follow a strict budget, and consider price and quality of procured product more than time and total costs, is considered crucial. Even though quality is important to get the product needed, it will be inoperable without adequate skills to use it. Hence, training and workshops from University of Agder is necessary, which will not be completed if the procurement process delay the project. Second, the project depend on a critical mass of more than 40 people to be able to transform distance education learning at the University. If the project do not achieve results on the way, and do not show visibility or affect the people at Makerere University, it will be difficult to make a difference.

"You need a critical mass of teachers, so there have to be many enough to be able to make a difference."

Without continuous results that proves the changes, they will quickly be isolated and the University will be hard to transform. Finally, if there is more delays in the project, and it does not complete on time, it could lead to waste of time and money by all stakeholders, which will not satisfy the users.

6 Conclusion

The purpose of the research has been to show how critical factors influence the procurement process in the project, to achieve success. As the procurement process was not considered comprehensively in the project implementation, and the project needs available and adequate technical equipment to achieve project success, the research consider critical factors and how they influence the procurement process of the particular development project studied, Distance Education Leapfrogging Project.

Prior theory consider the factors found to be critical to the decision-making process and critical areas of concern in projects. However, they are more concerned with how the factors will influence the project in general, and do not distinguish between the specific tasks or activities. Hence, to know which factors and how they will influence the results in DELP's procurement process, is considered. The project's biggest concern is to achieve costs within budget, quality required and delivery within schedule to achieve a successful procurement process and satisfy the users' needs. Thus, the thesis contributes to the project, but also in a broader perspective to understand how critical factors will influence the procurement process in development projects. In the following paragraphs, the factors found critical are synthesized.

Personal skills and market conditions was found to be critical to achieve costs within budget and quality required. Due to the lack of technical equipment available in the local market and the equipment purchased are not known to the user department at the University, it is critical that the project ensure adequate people with technical skills within the user department, the Directorate of ICT Support and the Procurement and Disposal Unit. Hence, to ensure adequate specifications, the pre-qualified vendors are qualified to deliver the particular equipment needed, adequate number of bids, verification of delivery and maintain the service and maintenance required when the equipment is in use. Prior theory consider problems regarding delivery (e.g. delivery not according to specifications) as caused by careless supplier selection, unclear specifications among others. Due to the lack of qualified vendors in the local market and the fact that several vendors have delivered wrong equipment, it is critical to ensure the vendors are qualified to deliver the equipment requested. Furthermore, even though the user department prepare adequate specifications of the equipment and time of delivery, they should consider to specify incentives (e.g. fines or rewards) to ensure the vendor deliver the equipment needed to the right time. In addition, it is also important

to consider the bidding method carefully, to achieve adequate number of bids and a competitive price.

Furthermore, time is considered critical due to the long lead-time of the procurement process and delays of order delivery. Personal skills, market conditions, social skills, regulations and the bureaucratic organization structure was found to influence time in several ways. The process is very complex itself, due to regulations in The Public Procurement and Disposal of Public Assets Authority, which makes it time-consuming due to several phases are required. In addition, personal skills are considered critical due to lack of people with adequate skills, which results in extra time spent on support from other stakeholders. A lot of the equipment purchased are not known to the user department, and not available in the local market. Thus, the market conditions and personal skills will influence the amount of time used to specify needs. In addition, due to the vendors rarely have the products in stock, the market condition will influence time of order delivery. Furthermore, adequate information flow with the vendor is required in the expediting of order, to ensure the specified equipment is delivered within time. The members should consider to demand a verification of the order before it is sent, to cross check if the vendor deliver the right equipment, which will reduce the risk of spending additional time on a new delivery. In addition, the accounting officer's responsibilities can extend the lead-time with several weeks, due to levels of communication. Furthermore, there are members in the buying center that take advantage of their possessed power in the higher level of the organization, which makes the approval of the contract time consuming. As the activities seems to be influenced by corruption, it is difficult to make the members perform their responsibilities.

Several activities in the project rely on the procured equipment, which makes the outcome of time, costs and quality in the procurement process critical to the total costs and to achieve success in the project. The critical factors that will influence the overall procurement process in the project, are communication and cooperation, training, commitment and project visibility and reputation. Thus, it is important that all stakeholders involved ensure adequate communication methods to achieve an effective information flow. Hence, it is critical that they improve the internet capacity and ensure to use an adequate webmail-system. Furthermore, if the procurement process results in more delays, the risk of not completing the project is high for several reasons. If the procurement process is not performed according to schedule, the project will be delayed, and not achieve the training

and workshops they rely on. Furthermore, the equipment will be inoperable without adequate skills to use it, which demand training. In addition, if the projects do not achieve the planned activities, and do not affect the people at Makerere University, it will reduce the project visibility. Without continuous results that proves the changes, they will quickly be isolated and the University will be hard to transform. Finally, if there is more delays in the project, and it does not complete on time, it could lead to waste of time and money by all stakeholders, and result in an unsuccessful project.

There is no doubt that the factors are critical to the outcome of the procurement process, and have a great influence on time in particular. The factors are quite challenging to the procurement process in development project, as they have to deal with complex geo-political environment and unfavorable marked conditions. While technology rapidly change, there is not adequate resources available in the local market to embrace the new information and take advantage of the modern communication methods. In addition, geo-political challenges like corruption makes it critical that the regulations are strictly followed, and demands several phases to ensure that the process is under scrutiny. Taking into account the factors, it shows several areas in the procurement process that are critical. The risk of the poor outcome the factors can influence in the procurement process, is considered critical to project success in DELP. Thus, the research provides critical factors to help the members in DELP understand how the procurement process is critical, and how the factors influence the process to achieve a more effective process that can result in lower total costs in the future.

The validity is thought be solid, and reliability is thought to be such that the findings can be generalized to other similar contexts, at least to a certain degree. Yet, I acknowledge the need for adaptions and adjustments in order for factors to be considered similar in other projects, due to different context, scope and purpose of other projects.

6.1 Further research

For further research of the procurement process in a development project, I would recommend to research the opportunity of using international bidding method, to see if it will be of advantage or disadvantage for the different products and service needed in a long term view. Furthermore, it would be interesting to do a comprehensive research of how corruption affects the procurement process and the total costs in development projects.

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Appendix 1- Interview guide

Interview guide

- The student will not use any names of the people involved. Your name will not appear in any report or publication of the research and your role will be completely anonymous.
- Your participation in the study is completely voluntary and you may refuse to answer any question or choose to stop participating at any time. Your decision not to volunteer will not influence the treatment you may be receiving or nature of the ongoing relationship you may have with the researcher.
- The use of audio tape is only to make it easier to gather all the information received, and will not be used to any other purpose than the master thesis.

Part 1

1. How is normally your days, working at the university?
2. Can you tell me about your responsibilities in DELP?
3. How do you consider having less or more responsibilities?
4. What is your background related to this project?
5. How much time do you spend on DELP each week in average?
6. How much time do you spend on tasks not related to DELP each week?
7. How do you feel about spending extra time on DELP?
8. To what extent does your time spent on DELP affect other tasks at the University?
9. How do you consider to have influence on the project?

Part 2

1. To what extent do you feel that everyone in DELP has a shared vision of the project?
2. To what extent do you feel that the end-users needs are considered?
3. How do you feel that the project is focusing on what Makarere needs?
4. How do you consider other stakeholders in the project to see what makarere needs?
5. When you talk to other people about DELP, how do you refer to the project?
6. To what extent do you feel that other people at the university are interested when you talk about DELP?
7. To what extent do you feel that the procurement office have an understanding of the project?
8. To what extent do you feel that it is easy to make people involved in the project?

Part 3

1. How do you consider there to be an open atmosphere within the people working on DELP?
2. To what extent do you experience an interaction between stakeholders in the project?
3. To what extent do you consider people involved easy to contact?
4. To what extent does the distance between stakeholders affect the project?
5. How do you experience the opportunity to develop at Makarere?
6. How does UiA contribute to develop the people at Makarere?
7. How do you consider there to be an open atmosphere at Makarere?
8. To what extent do you consider the people in the procurement office easily available?
9. Who cooperates on deciding the specifications of the equipment?
10. To what extent does UiA help find the right technical equipment to use in DELP?
11. Who do you contact if there occur problems related to the technical equipment you use in DELP?

12. How do you prefer to solve problems related to the procurement of technical equipment in DELP?
13. How do you consider the response when you delegate tasks to other people in DELP?
14. How do you consider the information flow when using e-mails?

Part 4

1. To what extent do you feel that it is challenging to know what equipment you need in the project?
2. Who is responsible for deciding what equipment needed for the project?
3. To what extent is it necessary that DELP has someone who have technical knowledge of the equipment to be procured?
4. How do you handle receiving technical equipment that does not work for its purpose?
5. Are there some technical equipment that is easier to work with then other?
6. Do you feel that the equipment would be easier to handle if there were more support available?
7. To what extent is it important that the project is on time according to schedule?
8. When the equipment has long lead-time, how does it affect the project plan?
9. Which possibilities would you consider to reduce the lead-time of technical equipment?
10. Do you get questions from the procurement department about the specifications of the technical equipment needed in DELP?
11. To what extent is it important that the project is within planned costs when specifying the technical equipment?
12. How do you control that the specifications of the technical equipment are in common understanding with the procurement office?